D1.3/2:3/6

UNIVERSITY OF FLORIDA LIBRARIES DOCUMENTS
AUG
1967

DEFENSE INDUSTRY BULLETIN

VOL. 3 NO. 6 JUNE/JULY 1967

UNIV OF FLORIDA LIBS.
DOCUMENTS
DEPARTMENT
U.S. DEPOSITORY

IN THIS ISSUE

Features

Military Economic Impact Today
Major General Allen T. Stanwix-Hay, USA 1

The Armed Forces Grocery Bill
Lieutenant Colonel Richard M. Hosler, USAF 4

The Challenge of Army Requirements to Aerospace Technology in the 1970's
Brigadier General John R. Guthrie, USA 7

Status of Funds Report 22

Departments

From the Speakers Rostrum 12
About People 17
Meetings and Symposia 20
Defense Procurement 32

NOTICE

The cover date for this issue of the *Defense Industry Bulletin* has been altered June/July so that hereafter it can correspond with the month in which the *Bulletin* is received by subscribers. There will be no interruption in continuity of publication; the next issue will be identified as the August issue and should be in your hands early in August.

The *Defense Industry Bulletin* is published monthly by the Business & Labor Division, Directorate for Community Relations, Office of the Assistant Secretary of Defense (Public Affairs). Use of funds for printing this publication was approved by the Director of the Bureau of the Budget.

The purpose of the *Bulletin* is to serve as a means of communication between the Department of Defense (DOD) and its authorized agencies and defense contractors and other business interests. It will serve as a guide to industry concerning official policies, programs and projects, and will seek to stimulate thought by members of the defense-industry team in solving the problems that may arise in fulfilling the requirements of the DOD.

Material in the *Bulletin* is selected to supply pertinent unclassified data of interest to the business community. Suggestions from industry representatives for topics to be covered in future issues should be forwarded to the Business & Labor Division.

The *Bulletin* is distributed without charge each month to representatives of industry and to agencies of the Department of Defense, Army, Navy and Air Force. Requests for copies should be addressed to the Business & Labor Division, OASD(PA), Room 2E813, The Pentagon, Washington, D.C. 20301, telephone, (202) OXford 5-2709.

Contents of the magazine may be reprinted freely without requesting permission. Mention of the source will be appreciated.

DEFENSE INDUSTRY BULLETIN

Published by the Department of Defense

Hon. Robert S. McNamara
Secretary of Defense

Hon. Cyrus R. Vance
Deputy Secretary of Defense

Hon. Phil G. Goulding
Assistant Secretary of Defense
(Public Affairs)

Col. Joel B. Stephens, USA
Director for Community Relations

Col. J. S. Douglas, USA
Chief, Business & Labor Division

LCdr. E. W. Bradford, USN
Editor

Mrs. Cecilia Pollok McCormick
Associate Editor

Mr. Rick La Falce
Associate Editor

Mr. John E. Fagan
Art Director

Norman E. Worra, JO1, USN
Editorial Assistant

A Challenge to Industry

Military Economic Impact Today

Major General Allen T. Stanwix-Hay, USA

[Editor's Note: Major General Stanwix-Hay, Deputy Assistant Secretary of Defense (Materiel), is "Mr. Intensive Management" within the Office of the Assistant Secretary of Defense (Installations and Logistics). His organization directs a production, consumption, and inventory control and reporting system that has increased management visibility on the actual and forecast availability of a controlled list of air and ground munitions, aircraft, missiles, and other major items from the lowest Service user unit in Southeast Asia to the desk of the Secretary of Defense. The objective is to provide a viable production base and logistic system responsive to the changing needs of field commanders but, at the same time, to prevent the creation of large surpluses of excess materiel similar to those existing after World War II and Korea. In this article he offers his thoughts on some of the comparative policies, practices and responsibilities between industry and DOD in this highly complex area of materiel management.]

HAVING read many articles in the *Bulletin* by members of the Services on such subjects as guns, ships, planes and butter, I feel that these subjects have been adequately covered and I will not discuss them. Rather, I shall discuss the impact in selected fields of these guns, planes, ships, and butter on the American economy from a DOD viewpoint.

What about competition? Paul Hoffman once pictured American businessmen as tossing from side to side and haunted by nightmares of competition. While I appreciate Mr. Hoffman's views, from my experiences I think the typical businessman has long ago decided that competition is an evil to be got rid of as thoroughly as possible. Pierpont Morgan said,

> **"By instinct, if not by reason, most businessmen hate competition. A man's competitor is the fellow who holds down his prices, cuts away his profits, tries to seize his markets, threatens him with bankruptcy, and jeopardizes the future of his family."**

In DOD we attempt to maintain our effort in competitive procurement to a high degree. Defense contracting officers are allowed sole source procurement only when necessary, and utilization of negotiation only when necessary. Generally speaking, the policy is still toward competitive procurement. In a time like this we do guard against breaks in production more assiduously than under a full peacetime environment. If I seem to be weasel-wording these statements, please recognize that I am doing just that. In our attempts to hold to competitive policies, we are being realistic in our knowledge that intensive management demands no break in going production quantities.

In recent years investment in new capital facilities has increased and, along with the base for more industrial construction and equipment, prices, wages and order backlogs in this field have been mounting. There have been efforts in Government designed to retard expenditures for new and improved production facilities. More recently there has been another change and a return to the Government's tax incentive for capital expansion. I know that a number of economists applauded those beginning actions against capital improvement as timely anti-inflationary moves.

I can't very well disagree with them as economists. However, having responsibilities in the field of production and thinking in terms of plant obsolescence and high-cost managerial facilities, I believe that no company, no industry, and no nation can afford to fall behind in this highly competitive, technological race that is being run throughout the world today. When I think of this, I think of our shipyards. When comparing our shipbuilding methods with Sweden and Japan today, I become ill at ease. To my way of thinking, the increased expansion and modernization of production capacity, which automatically occurs in free market economy in times of rising demand and increasing prices and profits, is one of the most effective business weapons we have.

Since 1946, one of our major national objectives has been to achieve maximum employment with price stability. We have pursued in our national policies a stimulation of demand, an increase in productive capacity, and these have contributed to the labor force usage factors that now exist.

Today we must confront the problem of reconciling maximum employment with price stability. Economic theorists face these as never having been done in recent history. Yet if we cannot solve this, we must either accept mounting costs as the price of high employment or resign ourselves to a reservoir of idle manpower as the cost of price stability. If our system of a people's economy is valid, and if our political courage is sound, we should solve this by and in the market place with government backing.

I am told that the readers of this magazine pride themselves on being a group of hard businessmen! And I think that's good, for then we can lay our points on the table in a hard business way.

Three Questions.

This section I'm going to title "What Would You Have Me To Do Department." In it I'm going to ask three questions without discussion, and without answering the questions. The sole purpose of this section will be to ask you to think.

Question One: An item made by specialist producers generally in or on the fringes of a scarce industry is offered for bid to 48 producers and among them are 12 mobilization producers. In answer to this proposal six replies are received, none of which is from planned producers. Then, four additional foreign proposals are received, all technically better than any received before, and all four at considerably lower prices than any of the domestic offers. As a taxpayer, what would you have me do?

Question Two: From a Qualified Bidders List of 24 in number on a procurement for a considerable quantity of a fairly scarce item, only one producer is said to be capable of fully answering the specification, and that one is a foreign supplier. You are asked to approve a sole source buy from that one foreign producer. What would you have me do?

Question Three: In my talks with businessmen around the country, I continually hear it said that "Defense is another customer, and a hard one with which to do business." Would you have me otherwise? After all, it's your money I'm spending.

One of many points in this business that intrigues me is the charge to get the best that can be obtained for the lowest cost. This is a good, sound business axiom. Many American industries have taken American dollars and made connections, opened factories, obtained import licenses, etc., with out-of-America producers in all countries of the world. The savings from outside connections are not necessarily passed on to DOD although it is said American industry becomes "competitive" by these foreign connections.

Since it is profitable for industry to buy and import for sale to DOD, since it is profitable for industry to enjoy the reduced labor costs of lower economic countries, since admittedly DOD is one of many customers, why should DOD not buy in quantity direct from the same foreign producers as industry? Why should DOD not expand its production base in the same manner as industry has?

One of the aspects of capital investment during a time of large DOD expenditures is who should finance the expenditure, industry or Government? I would hope that the increase to overall capacity would come from industry. Rare indeed is the military manufacturing technique or material which does not ultimately find its way to commercial use. I can understand industry's reluctance, without meaningful incentives, to make substantial capital investments in special purpose equipment or in temporary, one-shot wartime surge requirements. But as the Assistant Secretary of the Air Force Robert H. Charles so aptly states:

> **"I cannot understand the reluctance of industry, if the requirement appears to have reasonable stability in a non-wartime environment, particularly where the new equipment can do a better job faster and at lower cost. The airlines do not provide machinery and equipment to the manufacturers of commercial aircraft. Was there more certainty to the 747 than to the C–5 at the beginning of those programs?"**

Mr. Charles continues to point out that, because of this reasoning, the C–5 competition specified, for the first time on a major program, that the winners would furnish all additional equipment. Lockheed and General Electric are so doing.

The U.S. Government is becoming a great owner of tools and manufacturing equipment. The correct balance of how much and what is too much government ownership of productive capacity is a very delicate question. The views of John Kenneth Galbraith are very pertinent to this subject. Mr. Galbraith says:

> **"The line that now divides public from so-called private organization in military procurement is so indistinct as to be nearly imperceptible. The mature corporation will eventually become a part of the larger administrative complex with the state. In time, the line between the two will disappear."**

I do not like the prospect.

Maj. Gen. Allen T. Stanwix-Hay, USA, is Deputy Assistant Secretary of Defense (Materiel) in the Office of the Assistant Secretary of Defense (Installations & Logistics). Before this appointment he was Special Assistant to the Assistant Secretary with responsibilities for coordination of all Southeast Asia logistic support matters. He also served as Test Director for "Project 60" which led to the establishment of the Defense Contract Administration Services Regions in the continental United States.

Mobilization and Demobilization

One of the most interesting and imaginative innovations in the present management of the Defense Department is a firm belief in intense management. Intense management is a way of life that says our nation can afford any necessity for defense; that all things necessary for defense will be provided; that the military commanders' stated requirements will be furnished; and, finally, that management by competent persons will be applied so as to provide the requirement at lowest overall cost ending up without an overbearing surplus.

It so happens that I fully subscribe to the belief in intense management, both as a military man and as a civilian. To be honest, let's frankly state that many do not fully subscribe to the belief.

One might ask what this has to do with mobilization and demobilization and I would answer, "Everything!"

Under a program of intense management one should know certain facts. One should know *production requirements*, *capability* and *schedules*. One must *know*, *estimate*, or *assume* consumption. One must know *inventory* and *location of inventory*. One must know *transportation*. These are basics, and all other thoughts that come to mind such as cost, storage, condition, etc., are either all a part of a basic or fringe benefit to the basic.

Under intense management, the manager *must be able* to know when too much is coming from production and be willing to order a curtailment. Conversely, the manager *must be able* to know when the input from production is too little, and must be both *able* and *willing* to order a timely increase to production.

The foregoing is not fancy; it's management. It's the way any profitable business is run, and I believe defense is business. In establishing the production base for certain items, one designs, engineers, calculates, estimates—call it what you will—the requirement, the consumption, the desired inventory, transit time. Then one builds the adequate base to produce. From such a base one moves up or down as the requirement varies in increments of change. Perhaps industry does not like the ups and downs of intense management, but doesn't it operate that way? Doesn't industry lay off when demand is low, hire back in full production? Why is it wrong for DOD to do so?

I HAVE chosen to write of intense management in this section on mobilization and demobilization because these areas have been the stepchildren of planners. "Mobilization" for a time was simply to turn on all production and flood equipment in all directions. For a period of time some agencies of the DOD refused to believe in mobilization planning because of the nuclear concept of war. Now it seems prudent to plan for mobilization under varying conditions—mobilization with imagination, if you will. But as in intensified management for mobilization, cannot we plan for demobilization as well?

Consider a theorist's view for a moment. Under intensive management during conflict, when production, consumption, planned inventories are held in balance, isn't it fully possible to plan for production manipulations when peace comes again? One knows, for example, the peacetime reserve desired. Therefore, at the end of conflict (end of major consumption) one allows production to flow through the proper leadtime, then one reduces production to meet peacetime requirement. It is a *planned* demobilization, not a sharp cut-off of production! Theoretical? No more so than a General Motors model changeover each year. Yes, it takes skill, imagination and the ability to enforce decisions, but those are the characteristics for which men are paid as managers.

Civilian and Defense Economics

My inclination has been not to mention the conflicts of a full civilian economy and a partial defense economy going side by side. Everyone with whom I have sought refuge in preparing this article, however, has cautioned me that this, as well as intensive management, would demand recognition.

It would be foolhardy to state that conflicts do not arise as these two behemoths of economics charge down the same road, involving the same industries and affecting the same people. The obvious conflicts arise in extended leadtimes for production, greater demand than capacity for machine tools, extrusions, forgings, and work forces. With defense priority systems in effect, the *defense* slow-up is minimized, but certainly pressures are placed on the civilian economy in these areas.

The small business man, particularly the small, non-defense manufacturer, feels more keenly the press and priority of defense business. Hardly a day passes that I am not asked by a small producer to rule on the justification of a priority for a needed item, a needed forging, a needed tool, casting, machine, etc. These requests come from the smallest businesses, from fishing supplies producers to home builders, air-conditioning parts producers and installers. Unfortunately, there is little that I can do to aid the applicant through the Defense Department, except refer him to the Department of Commerce.

Because of the fundamental laws of supply and demand, the cost of labor tends to increase. U.S. industry in 1967 shall probably feel the pressure of organized strikes by labor. Most of the larger union contracts in mass industries have been or will be up for review, as are the basic industry contracts in metals and chemicals. The operating ratios of industry have been high, and labor generally bargains hardest in times of plenty. I do not expect this year to be an exception.

The rights of labor at the bargaining table have long been recognized in our country as one of our cherished privileges. Our Government will go through great difficulties to assure that the rights to unfettered bargaining by labor and management are maintained. It is only with real and sincere reluctance that our Government will enter into negotiations. Federal mediators will go to great lengths to keep the parties in negotiations within local surroundings. Should the need be great and progress little, the mediator with great patience might suggest a change of location for mediation and, as a last resort, may have to recommend to the Justice Department that legal injunction appears to be the sole hope of getting the parties back to work. There have been few applications of legal injunction but, when necessary for the best interests of the Government and the people, it has been invoked.

It is not always the big name industry that causes the most serious problem in defense production. A small producer of a unique chemical, a wholly owned process, or a particular skill can cause more concern than a large producer of competitively produced products. In this day of space-age production, high reliability parts, critical temperature applications, chemicals, bearings, it is usually the highly skilled, small producer who gains the top spot attention in my office.

Balance of Payments

Now what about our balance of payments? Actually, we did pretty well last year. Treasury Secretary Fowler reported that the payments gap deepened in the final quarter but, thanks to an earlier inflow of outside capital, the deficit was held to a very marginal increase over 1965.

Considering the problems created by Vietnam, this has to be judged as a respectable showing. The total was roughly half the deficit in 1963 and 1964. The direct foreign exchange costs of Vietnam increased last year by roughly two-thirds of a billion dollars. The tight money situation at home saved matters from being much worse; high interest rates attracted enough foreign capital to offset the war's effect and this, combined with a lowered level of American investment and lending abroad, kept the payments gap within manageable bounds.

Shortage of Skilled Labor

Let me touch for a moment on scarce trades in industry today. To put it bluntly, it seems that trades requiring hard physical labor, long periods of apprenticeship, and some natural skills are more suspect for labor

(*Continued on page 16*)

$1.75 Billion in FY 1966

The Armed Forces Grocery Bill

Lieutenant Colonel Richard M. Hosler, USAF

The responsibility for subsistence procurement for the Armed Forces is assigned to the Defense Supply Agency's Defense Personnel Support Center (DPSC) in Philadelphia, Pa. DPSC is the national inventory point for procurement, storage and issue, at the wholesale level, of practically all subsistence for the Military Services.

The total DPSC business volume distributed throughout the U. S. food industry exceeded $1.75 billion in FY 1966. Purchases by DPSC's Subsistence Regional Headquarters amounted to $1.22 billion. Military installations obligated $142 million in the form of delivery orders against indefinite delivery type contracts consummated by DPSC for commodities such as milk, milk products and bakery products. Delivery orders against brand name contracts amounted to $456 million.

As one might suspect from examination of his own household grocery bills, beef is the biggest dollar item in DPSC's grocery basket. About $227 million was spent in FY 1966 for carcass and fabricated beef; $36 million for bacon; $38 million for ham; $26 million for chicken; $31 million for coffee—just to provide some insight into individual item purchase volume. Perishable commodities represent about 53 percent of dollar expenditures with the balance for nonperishables, such as sugar, flour, and other canned and dehydrated items. In total, over four billion pounds of subsistence were purchased with the $1.22 billion.

While the headquarters of DPSC is located in Philadelphia, the actual purchasing of subsistence is accomplished by nine DPSC Subsistence Regional Headquarters (SRH) located in principal cities throughout the United States. A tenth SRH, located at Columbus, S.C., was closed on April 30, and the SRH in Fort Worth, Tex., is scheduled to be closed in July 1967.

Addresses of the nine SRH's are:

Chicago Subsistence Regional Headquarters
536 S. Clark St.
Chicago, Ill. 60605

Fort Worth Subsistence Regional Headquarters
Felix at Hemphill St.
Fort Worth, Tex. 76115
(Scheduled to be closed in July 1967.)

Kansas City Subsistence Regional Headquarters
623 Hardesty Ave.
Kansas City, Mo. 64124

Los Angeles Subsistence Regional Headquarters
929 S. Broadway
Los Angeles, Calif. 90015

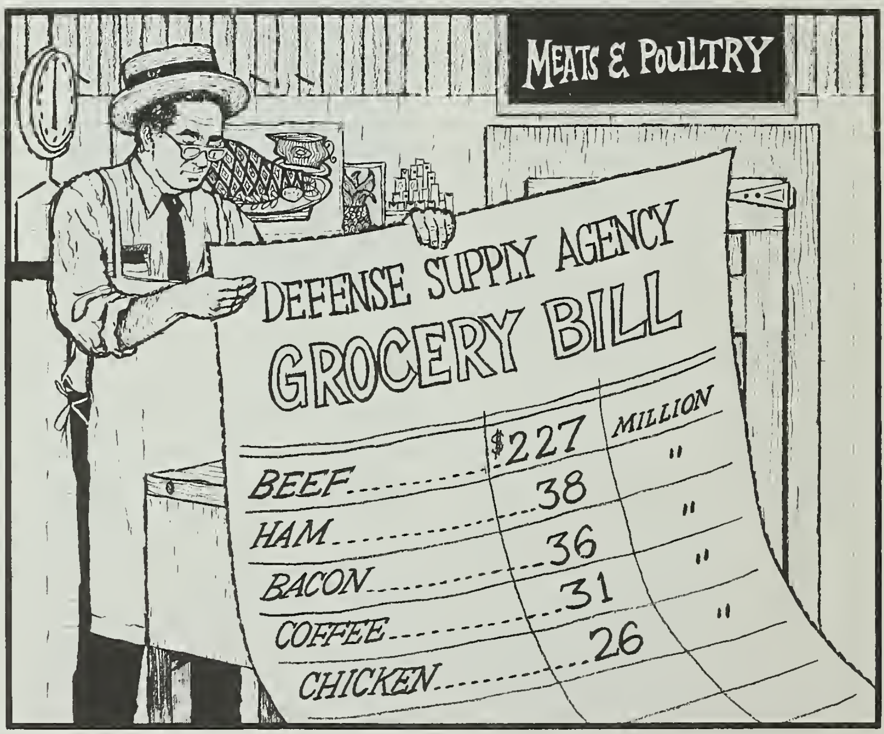
New Orleans Subsistence Regional Headquarters
4400 Dauphine St.
New Orleans, La. 70140

New York Subsistence Regional Headquarters
Third Ave. and 29th St.
Brooklyn, N. Y. 11232

Oakland Subsistence Regional Headquarters
2155 Webster St.
Alameda, Calif. 94505

Richmond Subsistence Regional Headquarters
c/o Defense General Supply Center
Richmond, Va. 23219

Seattle Subsistence Regional Headquarters
Pier 91
Seattle, Wash. 98119

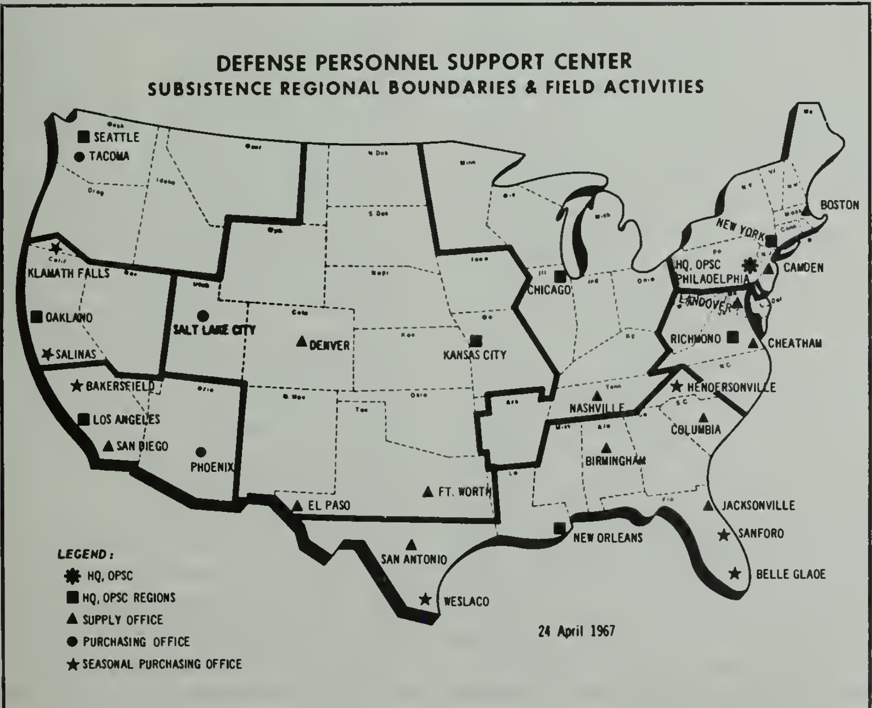


The regional headquarters are assisted by additional field supply and purchasing offices that are strategically located in areas of production and need. DPSC headquarters in Philadelphia performs no subsistence contracting, *per se*, except for indefinite delivery type contracts for brand name items sold in commissaries. In such cases, delivery orders against these contracts are placed by continental United States commissaries directly to the company involved. Overseas commissary requirements from DPSC brand name contracts are submitted directly to the assigned servicing port SRH which, in turn, places a delivery order to the supplier-contractor. Arrangements are made by the servicing SRH to ship the required items to the customer commissary.

While DPSC, through its SRH's, is a decentralized operation organization-wise, subsistence procurement procedure embraces centralization of purchasing for all items to the maximum extent possible in order to realize the economies derived from carlot purchases and shipments. This is accomplished by assignment of commodities to control SRH's. Procurement of all subsistence is by specification, and purchases are made on a fully competitive basis from qualified industrial sources throughout the United States.

In the area of non-perishables, for example, all roasted and ground coffee is purchased by the SRH New York, canned meats and shortening by SRH Chicago, canned fruits by SRH Oakland, and canned salmon by SRH Seattle. Each depot-stocked, non-perishable item is assigned to one of the SRH's for purchasing, once a funded procurement directive or requisition is generated. Each non-perishable control SRH is responsible for its own solicitation and contract administration, based on standardized policies and procedures issued by DPSC headquarters in Philadelphia. Procurement cycle and timing for non-perishables is based on several variable factors common to each particular item and seasonal considerations. If the item is available at fairly stable prices throughout the year, it may be purchased on a monthly or quarterly basis. Such seasonally packed items as canned fruits and vegetables, on the other hand, are most frequently purchased on an annual basis. In any event, both procurement cycle and timing of actual purchases are under the close control of DPSC headquarters, and the SRH's react according to its direction.

Perishables, fresh and frozen, are handled somewhat differently from non-perishables. Such commodities must normally be purchased as close as possible to consumption date because of their perishability, which makes them subject to varying rates of deterioration and wide price fluctuations in the market place; the latter is due to very sensitive supply and demand factors that are always at work in the food business.


DEFENSE PERSONNEL SUPPORT CENTER
SUBSISTENCE REGIONAL BOUNDARIES & FIELD ACTIVITIES

24 April 1967

Purchasing of perishables is a fast-moving, fascinating operation and varies somewhat with each group of commodities. All are purchased under the widest possible competition but items, such as fruits and vegetables will be sight-selected by DPSC buyers in the field or local market, while other items, like meat and cheese, are procured by nation-wide competitive bidding. Offers against most perishable solicitations are seldom provided more than an hour or so before closing and, within a period of several hours after closing, the offeror expects to know if he won an award. This is the normal commercial practice for dealings in most perishables on which the prices are quite volatile on the open market, and this follows the original concept for coordination of mass buying of subsistence as established at the inception of centralized food buying at the former U.S. Army Quartermaster Market Center in 1941.

Continental U.S. military installations submit requisitions for perishable commodities to the SRH's in whose geographical area they are located. Overseas commands requisition to the port SRH's that are assigned the servicing of their demands. Each SRH consolidates all requirements into the maximum of carlots and then transmits these requirements, except for fresh fruits and vegetables, to the control SRH that is responsible for national carlot solicitation. The control SRH solicits on a national vendors mailing list. Offers against solicitations are given by vendors to the SRH in whose area they are located. Closing time is simultaneous throughout the nation. The low offers received by each SRH are teletyped to the control SRH, where the low offeror in the nation is determined. Within an hour or two, the SRH from whom the lowest offer was received is advised to make award and that SRH administers the contract to completion.

SRH Chicago is the control region for the most carlot perishables. Exceptions are: shrimp—SRH New Orlean; eastern oysters—SRH Richmond; Atlantic varieties of fish—SRH New York; Pacific varieties of fish, including oysters—SRH Seattle. Because of the restricted geographic areas of availability for seafoods, the control SRH generally receives offers to its solicitations directly from all vendors.

The procedure varies somewhat for fresh fruits and vegetables. There is no control SRH for procurement of these extremely perishable commodities because the geographical availability varies for each item throughout the year. DPSC's purchasing agents must go where the crops are at the moment. The consolidated carlot requisitions for fruits and vegetables are, therefore, referred by the requiring SRH directly to the SRH in the appropriate growing area for accomplishment of purchase and timely delivery. A guide to growing area availability is provided by DPSC on a monthly basis to all SRH's for use in referral of requisitions. Weekly supplemental market information is also provided when appropriate. Less-than-carlot quantities are bought from the local wholesale fruit and vegetable market on a competitive basis and by sight selection. Both field and local market (street) buyers are qualified contracting officers' representatives, being assigned as such on orders.

Only minimum operating levels are maintained by SRH's for frozen and some fairly stable refrigerated items to assure responsive supply. Other items, such as chilled meats, fruits and vegetables, must be promptly purchased for shipment. Items that cannot be carlotted, as described previously, are purchased by each SRH on a wide competitive basis against their own approved vendors' mailing lists. Any SRH encountering difficulty in procurement of less-than-carlot items may call on DPSC headquarters in Philadelphia or any other SRH for assistance. If an item is available anywhere in the nation, DPSC can find it and buy it.

Several methods of procurement are utilized in DPSC's subsistence purchasing program. Most contracts are firm-fixed price and negotiated under the provisions of the Armed Services Procurement Regulations (ASPR) that permit DPSC's informal competitive Notice of Intent to Purchase (NIP) as well as field and street buying to be used for subsistence. The NIP procedure provides wide competitive procurement, yet permits a degree of flexibility that is deemed necessary for the volatile and fluctuating food market. This procedure permits negotiation with all offerors at any time prior to award.

The ASPR and the Public Law, as announced by the Congress, require that formal advertising be used whenever such method is feasible and practicable under existing conditions and circumstances. Formal advertising is competitive bidding, the same as obtained under DPSC's NIP procedure, except that bids are sealed and must be in writing; bids must comply in all material respects with the Invitations for Bid; and there is a formal and public bid opening to ascertain and establish the successful bidder. Due to daily fluctuations in price and availability of most perishable commodities, formal advertising is neither feasible nor practicable. However, formal advertising has been used extensively for non-food items, such as ration assembly contracts for the assembly and packaging of operational rations. It is also utilized for certain non-perishable food items where it is feasible and practicable.

The NIP procedure has many advantages. It may be used on a one-time basis for a definite quantity, or as a basic NIP without specific quantities but covering an extended period of time, usually three months. As firm requirements arise, solicitations are made against the basic NIP by use of an addendum which is specific regarding quantities, closing dates, delivery schedules and other appropriate information. This procedure substantially reduces the amount of paperwork in DPSC's frequent purchases since purchases of perishable commodities are made virtually every working day of the year.

In field buying of fruits and vegetables, the carlot or trucklot requirements to be purchased are disseminated to the trade. The expert field buyer makes the visual comparison of offers and best-value selection of these very sensitive perishable items in the fields or sheds of vendors who offer products. All facets of this buying operation must move expeditiously in order to minimize quality reduction from purchase to consumption. The purchased product is shipped to DPSC supply points for breakout and issue to requisitioners, or an entire shipment may be sent direct to large military installation.

The street buying of less than carlots of fruits and vegetables on the local market most frequently involves utilization of a blanket purchase agreement (BPA), which amounts to an agreement with each contractor to supply specified items on call and the contractors must agree that the price he charges will be no higher than the price he charges his most favored customer. Several companies in each market are on BPA's and competition must be obtained for each call that is made by the expert street buyer, who is assigned to make his visual selection from the local market. Under this procedure contractors bill DPSC weekly, semi-monthly, or monthly, similar to a charge account.

DPSC was created and is being maintained to provide a single organization within the Defense establishment where military consumers can look for supplies and industry can look for sales. Active participation by the food industry is regularly solicited and size is no deterrent, as evidenced by the $683 million awarded to small business during FY 1966. The organization is flexible and prepared to adapt to changes in demand placed upon it by its customers. A good example is the introduction of a sizable list of the rather sophisticated freeze-dehydrated foods such as shrimp, cottage cheese, chicken and beefsteaks. Production testing of irradiated bacon for possible later procurement has been completed, and a production test of irradiated potatoes is in process. As demands of the Military Services for products from these new processes evolve, DPSC's representatives will be working with industry in the development of a wide procurement base.

About the Author—

Lt. Col. Richard M. Hosler, USAF, is the Chief of the Subsistence Division, Directorate of Procurement and Production, of the Defense Personnel Support Center, Philadelphia, Pa. His previous assignments include Commander, Subsistence Regional Headquarters at Kansas City, Mo.; services with the U.S. Air Force Inspector General's Office in the procurement and production inspection activities; and extensive procurement experience with the Air Force.

The Challenge of Army Requirements to Aerospace Technology in the 1970's

Brigadier General John R. Guthrie, USA

RECENTLY the Army reviewed its requirements for the 1970's in the aerospace technological area. In reviewing the future Army research and development requirements, the first thing which comes forcibly to the fore is anti-ballistic missile technology—as exemplified by the Nike program. Nike X is the Army's most expensive single research, development, test and evaluation (RDT&E) program. Of the $1.5 billion in this year's RDT&E budget, approximately 30 percent is going to Nike X.

This extremely complex program can probably be said to have started in 1957. At that time the requirements laid on the research program were relatively uncomplicated. They were to compete against an attack of relatively few missiles with unsophisticated decoys and penetration aids. This was the original Nike Zeus system, a system with its basic radars and one type of missile capable of handling only a few targets at a time. Today, the threat may consist, literally, of a cloud of warheads and decoys. As a result, the program was reoriented in 1963 to the present Nike X concept.

The major parts of the new Nike X system are a multi-function array radar called the MAR; a missile site radar—the MSR; a third newly established radar with a longer wave length for handling long distance targets—the peripheral acquisition radar (PAR); an improved Zeus missile for long-range intercepts; the Sprint missile for short-range intercepts; and very high-speed digital multiprocessor computers.

The major radar in the system is the MAR, of which the one at the White Sands Missile Range is our test-bed model. The MAR is designed to perform the function of four conventional radars by target detection and identification, target discrimination and sorting, target tracking, and interceptor missile tracking and guidance. Since it is a phased array radar and uses electronic beam steering, it can perform all of these functions nearly simultaneously. The outgoing signals leave via the smaller face, with the return signal received through elements in the larger face. Another of its major assets is the ability to harden the site, i.e., protect it from all but a direct hit by burying most of the components, including data processors, deep underground. We currently foresee the MAR to be about as high—or as deep—as a 10-story building.

The Nike X system will employ two solid propellant nuclear warhead missiles—the long-range Spartan and the short-range, very high acceleration Sprint. The Spartan is an improved edition of the earlier Zeus which has already proven itself capable of intercepting both ICBM target vehicles and satellites. While the Spartan is designed for long-range, high-altitude and high-kill radius intercepts, the Sprint is a relatively short-range missile. The unique characteristic of this bullet is its acceleration—it can climb upward a mile in the time of two heart beats. The Spartan would destroy or damage nearly everything in a cloud, while the Sprint would be fast enough to allow us to take advantage of atmospheric filtering as a discriminating agent and of previous action by the Spartan.

The Sprint is popped from its underground silo by a gas generator, and the first stage ignites once it clears the ground. It is then guided via thrust vector control from the second the booster ignites. Once clear of its silo a thrust vector control system causes the missile to pitch over on an on-trajectory attitude.

The status of the Nike X system is as follows: The MAR has been undergoing operational tests at White Sands for over two years; construction of the second MAR, which will approach a tactical configuration, is under way at the Kwajalein test site; the improved Spartan has a year of development behind it; and flight tests of Sprint are under way at White Sands. The cell eject system, the thrust vector control system, and the design and structure of the missile have proven to be what are required.

Before leaving Nike X, one other aspect should be mentioned. As part of the project, proposals were required treating various defense options for its deployment. Last year, at the direction of the Secretary of Defense, an integrated deployment plan was prepared based on various levels of defense ranging from light attack to massive attack, as well as what levels of attack might reasonably be expected over an intervening period of years and what Nike X requirements would be necessary to counter such attacks. We refer to this as the "building block" concept—a feature of the Nike X system. The decision as to how much to deploy and when has not yet been made by the Secretary of Defense; however, the Army is continuing Nike X development and is ready to implement any decision.

This basically is the entire Nike X picture. It illustrates the requirements for advanced, highly reliable engineering which this sophisticated, highly complex weapon system will place on American industry during the next decade. These requirements include not only those for such initial deployments as may be directed, but also to stay ahead of a dynamic threat, constantly striving for means to penetrate Nike X's protective shield.

Surface-to-Air Missile Development

Another system for the 1970's, for which the Army has high hopes, is one we call SAM–D—surface-to-air-missile development. SAM–D is a possible replacement for both Hawk and Hercules, and is a successor to two earlier study efforts—the Field Army Ballistic Missile Defense System (FABMDS) and Army Air Defense System —1970's (AADS–70).

SAM–D will be oriented principally to the defense of the Army forces in the field against aircraft and short-range tactical ballistic missiles, and would complement low altitude forward area air defense weapons, such as the Redeye, a man-portable, bazooka-type missile. The system will be designed primarily to meet the high performance, air-supported threat, but it will also have a capability against short range ballistic missiles.

The Army's estimate of how this system will be configured is as follows: It will have several tracked vehicles, each mounting either phased array radars with high performance computers or quick-reacting, supersonic missiles. Not surprisingly, the characteristics the Navy seeks are similar to those desired by the Army. An initial evaluation of the requirements of the two systems showed that a common system would not satisfy both Services since there are differences in the environment in which each would operate, as well as differences in operational concepts. However, the Army and the Navy will make a maximum effort to develop common components, as well as to exchange appropriate development data.

The present Nike Hercules air defense system is a semi-fixed one, capable of engaging one target at a time. Hawk, though we are upgrading both its mobility and target-handling capability, is able to engage only two targets simultaneously. With SAM–D we will have a highly mobile system of greatly increased target-handling capability, flexibility and less operational cost. As presently conceived, SAM–D would be the principal tactical air defense weapon for the 1970's. Its development and production will present real challenges, not only to research and development scientists and engineers, but also to production experts. It, too, like any major weapon system development, will cost money, probably several billion dollars if deployment both in the United States and with the Army in the field is directed.

The Helicopter and Air Mobility

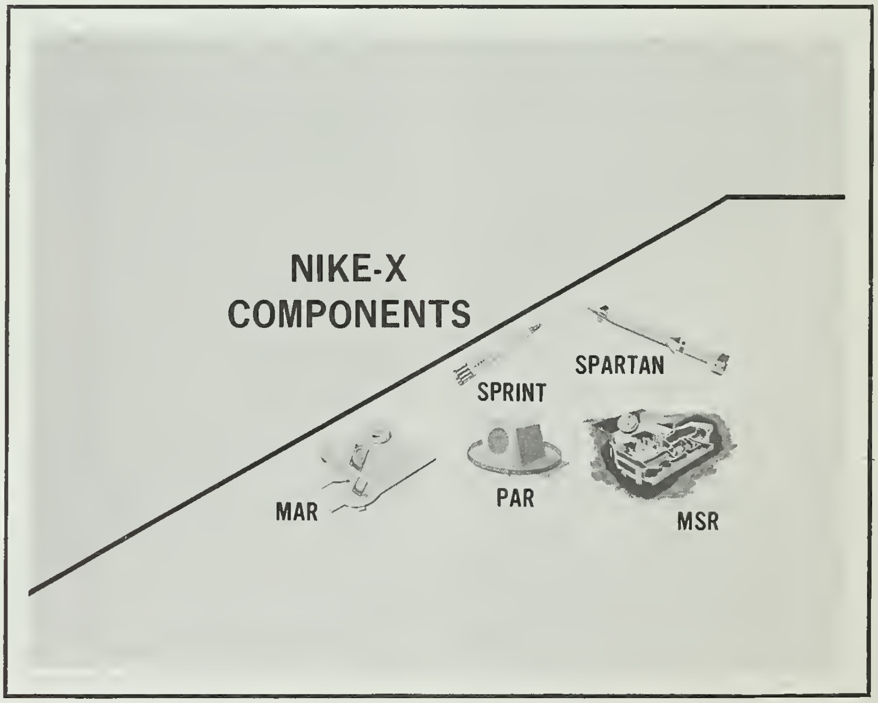
An area more directly related in the Army's present research and development program is the development of future Army aircraft and associated equipments.

The advance of the helicopter, both technologically and operationally, to meet the challenge of our present commitment in Southeast Asia is now a well established fact. It goes without saying that the helicopter and Army air mobility have really come of age in the past decade with Vietnam as the proving ground.

As a history major, I am one of those who believe that military operations, both strategic and tactical, have been guided by certain fundamental principles. All the great captains from the days of Alexander and Hannibal have been guided by them. Mao Tse Tung and General Giap may wrap them in communist batter, but the Viet Cong, too, are guided by them. The successes which they have achieved are largely attributable to their able application of those principles which favor guerrilla operations—surprise, economy of force, rapid maneuver to mass overwhelming force against the selected objective. With his knowledge of the countryside, his ability to melt into the background, his ability to interdict normal ground lines of communication by mines and ambush, in the past the guerrilla was fought essentially by an overwhelming preponderance of force—until the advent of the helicopter. As is well known, the Japanese and Germans had to commit up to 10 times the force to keep their lines of communication open in China and Russia during World War II.

With the helicopter's ability to deliver fresh forces quickly and mass them rapidly, the counter-guerrilla forces have been able to exploit the guerrilla's preferred principles of war against him, particularly those of mass and maneuver.

In a way, these two principles can be related to the physical sciences in a rather elementary sense by the use of Newton's Second Law. The force brought to bear in combat can be equated to the mass times the acceleration or momentum of the troops committed. This may be a rudimentary analogy; however, it serves to emphasize the importance of speed in military operations. The strategy of Napoleon's campaign was highlighted with two key tactics: the massing of his forces and the rapidity of his movements, the speed of which Jomini more than once compared to lightning and which led the



French soldiers to remark in 1805, "The Emperor has invented a new method of waging war; he makes use of our legs instead of our bayonets."

Today the U.S. Army is crossing the threshold of a new era, an era of fire and maneuver in which we are capitalizing on what technology can contribute in moving our soldiers and firepower rapidly through the air to close with and destroy the enemy.

In this century, we have seen major progress in all areas of technological advancement and, in the interest of the national defense and the security of the free world, the military is pacing itself with this technology. In the area of firepower the U.S. Army has made dramatic progress since the days of the pack howitzer. Artillery has always accompanied the infantry, but it was a cumbersome process to mount, dismount and reassemble the ever-needed fire support for the horse cavalry.

Today in Vietnam, artillery is moving in a far more efficient manner. By means of the helicopter, lightweight 105mm howitzers move to the scene of battle at speeds surpassing that of bombers in World War I. Being an artilleryman myself, I can fully appreciate the efficiency of moving tubes in this fashion—over jungles, mountains, and rivers, unimpeded by terrain in providing timely, accurate, sustained fire support for the ever-moving infantry.

We look to industry to help us achieve still greater mobility in the next decade. This will not, however, be merely by providing more and faster wings. It must also come from improved aerial means to survey position and target areas accurately; to provide current, accurate, ballistic, meteorological data over wide areas; and an ability to acquire, identify, locate and mark targets quickly and accurately, rain or shine, day and night.

Though primarily designed for security and escort of troop-carrying helicopters, the armed helicopter has come a long way towards proving the value of aerial artillery and enhancing the attractiveness of such a concept. When it was initially determined that an armed helicopter was a necessity, the Army began to improvise and adapt ground weapons to the helicopter by means of extra booms, braces and struts. The standard M–60, 7.62mm, light machine gun of the infantry found its place in the doors and on the sides on Army helicopters. The relatively new and highly effective infantry 40mm grenade was brought into use by the installation of a grenade launcher turret on the chin of the UH–1B Iroquois. For greater punch, the familiar 2.75 inch folding fin aerial rocket and 20mm automatic guns were adapted to hard points on the now bristling sides of the UH–1B. The XM–21 system, comprised of 7.62mm machine guns and a rocket pod, was provided to give the helicopter a real "one-two" punch.

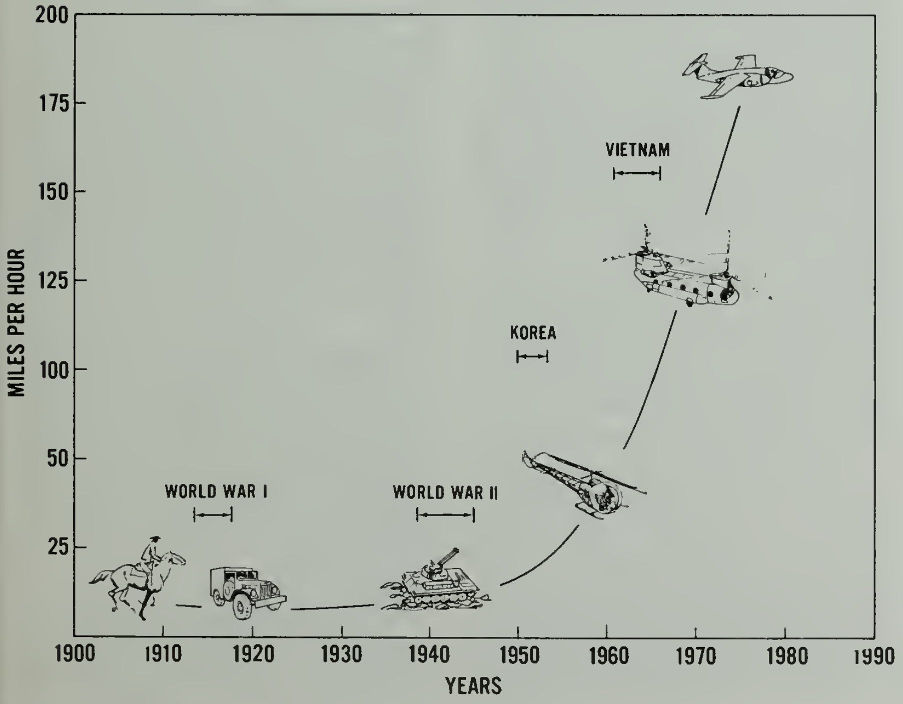
These weapon systems offer us a much needed, direct fire support capability that forces the enemy to keep his head down for those critical moments between the time the Air Force tactical aircraft finish their bombing and strafing runs, and the time when the troop ships touch down in the landing zone. Time and experience, as expected, showed that deficiencies accompanied the transformation of a utility helicopter into an armed escort vehicle. The result was a degradation in both weapons and helicopter performance. With weapons installed, the speed of the UH–1B dropped below the cruise speed of the troop ship it was escorting.

As an interim solution to this problem, the Army is moving to a more extensively modified UH–1, the AH–1G, popularly called the Cobra. This interim armed helicopter will offer numerous improvements over its predecessor and will bridge the gap between the cobbled-up armed helicopters of the 1960's and the fire support systems of the 1970's.

The next decade will find the Advanced Aerial Fire Support System (AAFSS) performing the escort and direct fire support mission with a design that capitalizes on advanced helicopter technology and represents the latest in the state of the art. Now in engineering development, the AAFSS, or AH–56A as it has been designated, is a two-place compound helicopter, featuring a rigid rotor, stub wings, and a tail-mounted pusher propeller for auxiliary thrust. It will cruise at speeds in excess of 200 knots and offer the stability and control essential for an aerial weapons platform.

In this regard, the AAFSS will carry a wide array of weapons, to include various calibers of machine guns, rockets, a grenade launcher, the TOW anti-tank missile, plus an integrated target acquisition and fire direction system using the Integrated Helicopter Avionics System (IHAS).

EVOLUTION OF TACTICAL MANEUVER SPEED



The armor protection for the crew and vital components of the aircraft will represent a major advance in passive defense hardware. The development contract with Lockheed-California Co. provides for design, fabrication, flight test and delivery of 10 of these systems to the Army before 1970.

Although fire support is an essential ingredient in combat, the battle is never won until the infantry is on the objective. At the turn of the century, our Army moved its men about the battlefield on foot and on horseback. In September 1914, General Joffre enlisted the taxicabs of Paris to rush two regiments of reinforcements to the front during the battle of the Marne. This action represented the first movement of troops to a battlefield by motor transport. Three years later when the U.S. expenditionary forces moved to the front, long columns of truck convoys were a common sight.

From these primitive beginnings, we have vaulted in half a century to the point where today in Vietnam waves of UH–1D, utility tactical transports, take off in the early hours bound for an objective miles from base camp. Enroute, the door gunners keep a keen eye out for hostile forces and return fire as necessary. Shortly before the "slick ships" carrying the assault troops arrive in the landing zone, their armed escorts place discrete suppressive fires on known or suspected Viet Cong positions using the weapons described earlier. As the gun ships pull up and shift their fire, the slick ships touch down and deliver the troops into the heat of battle, fresh and well prepared to do combat. As the high ground is secured and communications are established, the CH–47 Chinooks arrive with follow-up troops and the heavier equipment. Thirty minutes before, these troops were receiving their final briefings and attack orders, 30 or 40 miles away through jungles or mountains that would have required days to traverse.

Our experience has clearly demonstrated the necessity for our transports, as well as our fire support ships, to be able to land and take off from otherwise inaccessible terrain. For example, in Operation Masher/White Wing against the Viet Cong, the 1st Cavalry Division completely surprised the enemy by seizing the high ground and attacking down hill. Quite a change from Grant's famous assault up Missionary Ridge.

Air Mobility of the Future

This is air mobility today. But what of tomorrow? Can this be improved upon? The answer is most certainly yes.

When compared to the aerial vehicles of tomorrow, today's helicopters can be considered, relatively speaking, as sophisticated as the taxicab army of 1914. Mobility has affected the tactics of the 20th century profoundly, and will most certainly continue to do so. In 1900, movement of men and material was limited to the speed of the man and the horse. In World War I, this speed began to give way to the truck's. World War II brought with it the mechanization of the artillery and the real firepower, mobility and shock action of the tank. Then came the mechanization of the infantry. Korea saw the helicopter as a fledgling that could survive in the heat of battle.

Over these years, the speed of maneuver has constantly increased with a pace matching that of science and technology. Within the next decade, it may not increase as exponentially but the slope will certainly be positive.

What is to take the place of today's UH–1's and CH–47's? Our thoughts in this regard revolve about what technology holds for improved vertical rising machines. Army aircraft of tomorrow, such as the new Utility Tactical Transport (UTT) System or Light Tactical Transport (LTT) System, must be selected through a careful iteration process whereby the doubts as to reliability, complexity and relative survivability have been minimized, if not eliminated altogether.

In order not to leave any stone unturned, we must attempt to breach the gap between the narrow bands of V/STOL and pure helicopters. It has long been recognized that the helicopter with its relatively low-disc loading is the most efficient hovering machine, while the simple fixed-wing has the most efficient lift-producing system for cruising flight.

For this reason, the Army composite research aircraft program is investigating how to marry the best of each in a single aircraft. To accomplish this, rotor drag must be reduced by unloading or altering the mode of operation of the lifting rotors so that their drag is minimized. In the cruise configuration, lift is transferred to conventional, winglike lifting surfaces and the rotor is stopped, stowed, or tilted. The application of such concepts should provide aircraft of significantly greater productivity, increased range, reduced logistics requirements and lower noise levels.

The Army composite aircraft program is being accomplished in three steps: the preliminary design study phase completed in June 1966, an intermediate component and model fabrication and test effort in 1967, and culminating with the fabrication and test of full-scale research aircraft.

A design competition in November 1965 resulted in contract awards to Bell Helicopter, Hughes Tool, and Lockheed-California for the study and formulation of a follow-on program including the design, fabrication, instrumentation and test of a composite aircraft.

The Lockheed version utilizes a stopped and folded main rotor, nacelle-mounted propellers and engine, and a conventional anti-torque tail rotor.

Brig. Gen. John R. Guthrie, USA, is Director of Developments in the Office of the Chief of Research and Development, Department of the Army. From July 1965 to March 1966 he was assigned to the Requirements and Development Division, J–5 Directorate, in the organization of the Joint Chiefs of Staff. He is a graduate of the National War College and holds a Bachelor of Arts degree from Princeton University.

In the cruise mode, the 60-foot main rotor is stopped, folded and trailed aft in a horizontal position.

The Bell proposal is essentially a high-wing airplane having a tilting prop-rotor mounted on each wing tip.

The Hughes hot-cycle rotor wing utilizes a dual purpose lifting device that is basically a hot-cycle rigid rotor with an unusually large hub. It acts as a tip-powered rotor for the hover mode and is stopped to become a low aspect ratio fixed wing for the cruise mode. The basic propulsion system is a turbojet gas generator in combination with diverter valves which direct the exhaust gas either to cascade nozzles on the rotor or the tailpipe.

For purpose of configuration analysis and future flight tests, these aircraft are to accommodate a 3,000-pound payload with disc loadings of 10 pounds per square foot or less, hover out of ground effect at 6,000 feet/95 degrees, and cruise at speeds between 300 and 400 knots.

Studies by the three competing contractors were submitted in June 1966 and subjected to detailed review and analysis which resulted in contract awards to Lockheed and Bell to pursue the stopped/stowed rotor and tilt prop/rotor, respectively, through the second phase. A decision on the concept which will proceed to the detail design, fabrication and flight test of full-scale aircraft could be made later this year with first flight as early as 1970. The composite research aircraft has high potential for major advancement in rotary wing technology for application to future military aircraft.

From this effort we expect to learn where we should go design-wise to provide the UTT's, the LTT's and the heavy lift helicopters which will replace our current UH–1 Iroquois, CH–47 Chinook, and CH–54 families during the next decade.

When you consider that there are over 1,900 helicopters in Vietnam today, the importance and magnitude of the research, development, test, evaluation and production programs to replace them is apparent. It is hardly necessary to add that, to be cost effective, they must truly represent major advances in performance, reliability, maintainability, and what might be called, tactical productivity.

In the heavy lift area the 1960's saw the introduction of the CH–54 Flying Crane into the Army inventory was delayed for some time as people debated the requirement for heavy lift. Now, the CH–54, with its 10-ton lift capacity, has proven its versatility in the heat of combat. It has recovered downed aircraft valued in the millions of dollars. It has served to move heavy artillery and oversize loads otherwise unmanageable with medium and utility transport helicopters. Although not the optimum desired by the Army, the CH–54 has served to validate the requirement and point the way to even greater recognition of the unplumbed potential of the helicopter.

As troop mobility increases, the requirement to move their heavier equipment becomes even more pronounced. Helicopter payloads in the 18- to 20-ton range will soon not only be desired, but essential. This capability must be achieved without any loss of the flexibility and agility of today's machines.

Tomorrow's aircraft will be subjected to far more vigorous usage than those of today; therefore, our requirements will become more demanding. Maintainability and reliability standards are increasing to the point where we will expect the helicopter to be as dependable and easy to maintain as the jeep. Where aircraft availability today is 50–80 percent, tomorrow availability should go to 90 percent. With the introduction of advanced state-of-the-art engines, horsepower-to-weight ratios should increase with an associated decrease in specific fuel consumption.

Dynamic components and other time-change items must have extended life, and adverse environmental conditions, such as dust, heat and humidity, should not hamper performance or longevity. Above all, the vehicles must be capable of living in the field with the troops they support. Sophisticated maintenance will be the exception rather than the rule.

These requirements may seem optimistic, but the rigid specifications for the light observation helicopter required an unprecedented maintenance-to-flight-hour ratio of less than one and it was achieved. We must seek comparable standards for our other systems. Items on today's wish list will be tomorrow's project data cards and 1970's contracts. Industry and the Army must strive together to make them a reality.

I hope that these paragraphs will provide an insight not only into our past and present, but primarily our aspirations for the future. The Army was better trained and prepared tactically, organizationally, doctrinally, and equipment-wise for the war it is fighting in Southeast Asia than ever before in our history. With your help we intend to be even better prepared for whatever we may face in the next decade. However, in case anyone is perplexed as to why we haven't moved quicker or done some of these things earlier, this thought bears consideration. If the earth's history could be compressed into a single year of 12 calendar months, the first eight months would be completely without life; the next two would see only the most primitive creatures. Mammals wouldn't appear until the second week in December and homosapiens until 11:45 p.m. on Dec. 31. The entire period of man's written history would occupy the final 60 seconds before midnight.

So, as we approach midnight and prepare to move forward into the 1970's, we should be thankful that we are here to step over this threshold. The prospects are even more challenging today than ever before, and our generations are serving as catalysts for the future.

AF Awards Study Contracts for A–X Aircraft

The Air Force has awarded four-month study contracts to four aircraft companies for preliminary design and other studies of the A–X specialized close air support aircraft.

Contracts were awarded to General Dynamics, Convair Division, San Diego, Calif.; Grumman Aircraft, Long Island, N.Y.; Northrop Aircraft, Hawthorne, Calif.; and McDonnell Aircraft, St. Louis, Mo. They were awarded by Air Force Systems Command's Aeronautical Systems Division, Wright-Patterson AFB, Ohio.

The study contracts are part of the concept formulation phase of aircraft development. Military need, concept of operation, feasibility, cost and best characteristics of a new aircraft are defined and analyzed under the contracts.

FROM THE SPEAKERS ROSTRUM

Address by Hon. John S. Foster Jr., Dir. of Defense Research and Engineering, at the Annual Meeting of the Aviation Space Writers Assn., Las Vegas, Nev., May 18, 1967.

Hon. John S. Foster, Jr.

* * * * * * * * * *

I turn now to my major purpose today: to explore a few areas of defense research and development which show the relationships between our work and yours.

I suppose it is now regarded as a transparently obvious axiom in any national policy discussion that national security—understood deeply—is a subtle balance of military, political, economic and technical factors. The significance of research and development in the strength and security of nations is unmistakably great. Further, the pace of modern technology—both ours and that of others—will continue increasingly to complicate all considerations of U.S. national security strategy.

In assessing the broadest implications of new technology and advanced weapon systems, there is, as I see it, a coincidence of our viewpoints. We in the Defense Department are as committed as you are to contributing to an accurate public discussion of the choices in national security. Surely there was no question in the 1950's about the vital service to the country when journalists, scholars and governmental spokesmen explored—sometimes heatedly—the impact of the intercontinental ballistic missile on the choice of strategic courses open to the United States and the Soviet Union. Surely there is no question today, for example, about the value of an informed, broadly based public analysis of anti-ballistic missile systems or of the spread of nuclear weapons.

National security demands continuing debate.

The vital importance of national security demands that our country have continuing, intense debate on the critical issues. This is, in fact, an international imperative as well. As you realize, the recent U.S. efforts to extend discussions of missile defense with the Soviet Union are based upon the premise that greater international understanding of these issues is necessary in the path of peace.

But again, make no mistake about the nature of these issues. They involve technical as well as political and economic elements. Too often, the technical facts, and particularly the range of uncertainties, are not treated adequately in publications. I suggest this inadequacy is not primarily the result of excessive secrecy but rather of our mutual failure to complete the discussion. All of us must contribute more here.

Let me turn now to our continuing, most critical area: research and development in our strategic systems. The overriding operational objective of our strategic programs is the deterrence of nuclear war. Mutual deterrence is, in fact, the only meaningful way a nuclear war can be "won" by both sides. Deterrence rests on the capability for assured destruction of the enemy's military, industrial and civilian base. A deterrent capability is characterized by three essential factors: assured survivability, penetration and control.

Our strategic offensive forces must be able to survive a surprise attack and still be capable of inflicting unacceptable damage. This assured survivability is achieved, in part, by a mixture of systems and techniques, land-based bombers, land-based missiles and sea-based missiles.

Surviving would not be sufficient if, after arriving at targets, our weapons were rendered impotent by defensive systems in the terminal area. They must be able to "penetrate" the defense, to strike the target. Penetration is achieved in essentially two ways: by brute force, through the use of overwhelming numbers to exhaust the defense; and by deception, such as through the use of decoys.

Finally, our strategic systems must be flexible and remain under our reliable, positive control. We cannot risk a response triggered by accident or false alarm.

Our record in achieving an adequate deterrent has been impressive, in quantity and quality. Our ability to deliver an overwhelming retaliatory strike, even after absorbing a surprise attack intended to paralyze our strength, is unquestionably convincing.

Now, you are saying to yourselves, we have heard all this before. But let us pause here a moment. I have emphasized the word "assurance" in reviewing our strategic objectives—assured destruction of any attacker, assured survivability, assured penetration, assured command and control. This is a crucial concept. It is crucial that we devote the highest priority to our thinking about assurances—and we do. It is crucial that we assign all necessary resources and great talent to maintaining and upgrading these assured capabilities—and we do. And it is crucial to our national security that the press not take this concept lightly.

We know it is essential to explain—clearly and openly—to any potential enemy the nature of our capability. The whole point of "assurance" is that everyone must appreciate the certainty and capability of our response to any major attack. Nevertheless, occasionally, there is an oversimplified "scare story" claiming that our deterrent force is in some way grossly inadequate. Such stories cannot be supported—either technologically or operationally. Such stories introduce unwarranted uncertainty, here and abroad. Such stories undermine the credibility of our deterrent. Because such stories cannot be supported, they are a great disservice to the country.

We go to great lengths to state the general facts about our assured strength. Yet some information must remain classified. Often this is a difficult line to draw—the line between what should be said to maintain credible assurance, and what should be left unsaid to ensure security; the line between what skeptical Americans want and need to know in an open society, and what a potential enemy wants to know to design effective countermeasures. For example, nothing is gained by disclosing design details of our penetration aids. Disclosing such data would not support our national purposes. It would only assist any potential enemies.

I want to clarify an important aspect of our thinking about assurance. The concept of assurance spans a complex interaction of the offense and defense. How does one know, for example, that an offensive capability is "assured" unless one has great confidence in his understanding of advanced defenses? This is precisely the thrust of our analysis. We develop the technology for the most advanced missile defense, and then we design our offensive missile systems to penetrate that defense. We develop the most advanced air defense technology, and then we design our aircraft systems to penetrate that defense. In general, we have been one to two technological generations ahead of any potential enemy in these advanced designs. So we have great confidence that our offensive forces are "assured." From this experience we have found that the offense has dominated the defense, and we expect this trend to continue in the foreseeable future.

Is there a technological plateau?

Now I want to discuss a difficult point, raised semi-annually in discussions of our strategic capability: the so-called "technological plateau." I occasionally hear the argument that we have reached, or have somehow accidentally been trapped in, or have decided to remain on, a "technological plateau." The allegation usually is either that we are not really pushing important new developments, or that we are not concerned about possible developments of potential enemies. I can say categorically that this argument is not valid in terms of any criterion I think is important. But I must say, before going further, that if you feel a key criterion has escaped our notice, please bring it to my attention. To set the record straight, let's look at this from several points of view.

First, let me give you examples refuting the funding fallacy often implied. In FY 1968, we are continuing our ballistic missile defense development efforts at the high levels of recent years. We are requesting $440 million for research and development work on the Nike–X system. And there is another related program in the Advanced Research Projects Agency, Project Defender, for which we have requested another $119 million. Our capabilities in this area have changed dramatically in the last 10 years. How can we be stagnating technologically in ballistic missile defense while we devote more than a half-billion dollars to it in one year?

Also in FY 1968, we are requesting about $350 million for programs on our Minuteman forces and about $433 million for the Polaris/Poseidon developments. These funds support some of the efforts necessary to demonstrate that we know how to penetrate any enemy's missile defenses.

Overall, let me remind you, DOD expenditures for research and development have increased almost 300 percent during the last decade. The research and development budget requested for FY 1968 is $8.1 billion. It contains requests for over 1,500 projects. The real argument here, I suspect, is not about the total. Most people seem to agree we're spending the right amount. The real arguments are about specific items, each of which always—always—has its advocates. So the problem is to achieve some balance, some sorting out of priorities and prospects. This requires judgment, and I would be the last to claim we have attained perfect balance. I think we do have about the right total.

So much for the charge that we are not really investing the required money. But how about the argument that we are not aggressively pursuing the frontier fields of defense technology? I don't think this is true. Here, too, are the difficult questions of balance.

For example, how does one know whether $1.4 billion this year for the DOD research and technology base is adequate? And how does one know whether we have the right balance between this base and our development projects which are funded at about $4.8 billion? Actually, these totals and ratios are merely the sum of thousands of numbers, each examined and set on its own merits. I know of no clearly needed improvement and no clear technological opportunity that do not receive adequate support. Probably more important we are not content with our past and current success. We continue to press the state of the art in every technical area in which there is a solid case for providing required improvements in our forces.

Thus I am puzzled by the occasional essay on defense research and development which simply ignores the enormous effort we continue to devote to advanced technology. Perhaps it is understandable that some pockets of misunderstanding will exist because, as I've said, we have been compressing great clusters of advanced work into a single year's effort. This situation is somewhat analagous to that assessed by Tom Lehrer, the mathematician turned singer/satirist, when he cracked, "I am sobered occasionally to recall that when Mozart was my age, he'd been dead 10 years!" I, too, am sobered to read the altogether plausible prediction that half of what a competent engineer will need to know 10 years from now is not available to him today!

One final aspect of this alleged technological plateau: the argument that we are in some way losing our strategic superiority.

For many years, the Soviet Union apparently has been following our lead in every important strategic system technical development: the intercontinental bomber, the solid-fueled missile, the Polaris-type submarine, the hardened and dispersed silo, and many other advances. This is still the case. We are following their activities with great care. We see no evidence that our planned strategic capabilities will be endangered by recent Soviet technological actions.

Our missile force represents a fully operational, reliable, survivable and, again, assured deterrent. Our missiles are more accurate. We have developed a family of penetration aids. The changes that we have made in our missile forces—Minuteman II, and soon the addition of Minuteman III and Poseidon—are much more than minor modifications and name changes. These new capabilities provide major increases in effectiveness. Our bombers are capable of low-altitude penetration over a target area. We will soon have a bomber with enhanced area penetration capability, equipped with stand-off missiles so that it can also avoid terminal defenses.

I am often asked how long we are going to keep one of these strategic systems. The answer is simple: as long as it can provide assured destruction.

In advanced technology, we have developed the capability, if required, to move rapidly into operational development and deployment of several new systems, such as an Advanced Manned Strategic Aircraft (AMSA) and an Advanced ICBM. These new concepts are waiting in the wings, not because we have avoided or failed to invest in the advanced technology necessary for strategic advantage. It it because, at the moment, immediate deployment is not yet clearly in the overall national interest.

Strangely enough, we sometimes get credit for a breakthrough we haven't made or get blamed that, if we haven't made it, the Soviets have. A number of recent articles "discovered" X-rays as a kill mechanism at high altitude. Depending upon the point of view of the author, either the United States has made this breakthrough, or the United States is behind in countering some Soviet threat based upon this X-ray threat. Neither the "pat on the back" or the "jab in the ribs" stories are true. One could read about these X-ray effects several years ago in unclassified official handbooks on nuclear weapons effects. Anyone working with nuclear weapons exploding above the atmosphere must either exploit, or protect against, such effects. We have had, and continue to pursue, major research and development programs designed to minimize the susceptibility of our systems to such kill mechanisms and, at the same time, to maximize their effectiveness in developing ballistic missile defense. The details must remain classified. An isolated speech or a paragraph in congressional testimony does not make this "new." I admit it can be "news," albeit news with an available background of fact.

Let me try to summarize my views on the matter of technological plateau. We know that research and development is "worth it"—in hard economic terms as well as in strategic terms, and in fulfilling normal military functions as well as in creating entirely new capabilities.

There is no stagnation in defense research and development. There is no technological plateau now. Nor do I think there will be one created, either accidentally or by design. You can help us by resisting any temptations to re-enforce the myth of a technological plateau. There are times when my job and yours may lead to conflict. But a controversy about a technological plateau is simply a false conflict based upon misinterpretation.

Vietnam conflict calls for quick-reaction projects.

We have looked briefly at research and development related to strategic systems, and a few problems in public discussion of these systems. Let's look now at a rather different topic: the role of research and development to support the conflict in Vietnam. The most important single focus in defense research and development today is on meeting, wherever possible, the research and development needs revealed by that conflict.

Each spring, as you know, we have opportunities to appear before the Congress to present and explain our budget request. Congressmen, like reporters, have a way of asking direct, penetrating, and important questions. One of the most striking questions this year was: Why do we show roughly the same research and development budget request in FY 1968 for the manned orbital laboratory and for our total research and development effort for Southeast Asia? An attempt to answer this single question may be helpful to you.

There are some simple answers. First, we cannot project our Southeast Asia research and development requirements very far in advance because so many of them are quick-reaction projects. In this fiscal year, for example, we initially budgeted about $400 million. Subsequently, the Services reprogrammed almost $100 million more, and received approximately $200 million more from emergency and supplemental funding. Thus the budget was increased from $400 to almost $700 million during an 18-month period in which urgent research and development needs developed. The same evolution may occur during FY 1968.

Second, some of our research for limited warfare simply isn't expensive. For example, the research and development required to develop a new jungle boot, specially tailored to the hot, moist climate of Vietnam, cost less than half a million dollars. The country has spent many times that much for the astronauts' flight gear. Both the soldier and the astronaut have to be properly equipped for their jobs. We need them both, and the dollars fall where they must.

Third, general purpose forces have been under development for hundreds of years, while the first astronaut flew four years ago. Hence much of our current tactical warfare research and development is devoted to achieving relatively small improvements to existing hardware. Two years of combat have demonstrated beyond question that our troops were well trained and excellently equipped from the outset.

These are a few of the simple reasons why we are not able to spend more. But there are other, more fundamental reasons.

General Maxwell Taylor has characterized the Vietnam conflict as limited war with limited objectives, limited resources and, hopefully, limited risks. I would like to add one more restraint: limited applicable technology. If there is one indisputable feature of the Vietnam war, it is that a "technology fix" alone will not solve our problems. The hard-core problems are essentially political, social and economic. The solutions to these problems will not be found in the products of research and development. Nor will it help to invoke any mythology about the potential of research and development.

I must add, of course, that there are some key problems in Vietnam which research and development should be able to solve. If solutions can be found to these problems, not only might the war be shortened but our capability to deter other such limited wars would be greatly strengthened.

At this point I would like to remind you of a somewhat under-publicized aspect of the war. General Westmoreland has been extremely eager to innovate, to press the concept of "combat research and development." To assist this process, I assigned two distinguished defense scientists to act as personal advisors to Admiral Sharp and General Westmoreland. Dr. William McMillan is in Saigon, and Dr. Thomas Cheatham is in Hawaii at the headquarters of the Commander in Chief, Pacific. To provide coordination of all our Vietnam-related research and development, I also established a new office within my staff, the Deputy Director for Southeast Asia Matters, and appointed Mr. Leonard Sullivan to this job. The splendid and critical contributions of these three men are a reflection of the entire research and development community's involvement.

We have had many research and development successes in Vietnam. But I think I should give you, in the interest of candor, a sampling of the research and development problems emerging from Vietnam which we still don't know how to solve.

- We are still looking, for example, for a satisfactory way to find tunnels. If we could reliably locate tunnels, we would be well on our way to cracking the Viet Cong's principal resource for command, logistic supply, and escape.
- As another illustration, many of our casualties are caused by primitive mines and booby traps. These are often made from our own dud munitions, sometimes even from our cast-off ammunition boxes. We would like a device capable of sensing explosives and/or metal wires and fragments about 100 yards away that one man can carry along with other combat gear. This same device might be useful in warning of impending ambushes—another serious and deadly problem.
- The Viet Cong are masters at the art of infiltration—not just across the borders into South Vietnam, but into our military bases, local outposts and villages where they practice the diverse techniques of terrorism. To meet this threat, we need much better ways to differentiate friend from foe. And we must find reliable "burglar alarm" systems to warn of approaching or passing danger. Like the other needs I have mentioned, the successful development of simple "border security" systems and "people-detection" devices will have spin-off benefits far beyond the scope of the present war.

We have not yet solved these problems. Do they sound impossible? How does it sound when I ask you to dig a little trench on the moon? Do you think these problems are not being solved because of a lack of money? I don't think that's the reason. I think it is because we don't know how to spend more money sensibly. This is a tough answer to give a Congressman and a reporter. But it's true.

These problems are perhaps best attacked by interdisciplinary teams of physical and social scientists. Any turning point in Vietnam will depend upon careful discrimination, analysis and, then, change in the social and physical environment. Obviously, we need to employ all of our skills to get to the point where, instead of counting killed Viet Cong, we will be counting live, independent, self-governing citizens.

As pointed out in my congressional statement, we in research and development must heed Santayana's warning that those who don't understand history are condemned to repeat it. We are trying to learn the lessons applicable to research and development activity. It would be irresponsible not learn these lessons. You can help us here by reaching for the careful and complete story, distinguishing between the various kinds of research and development problems.

"Man-in-the-System."

Let me turn now to two examples of areas in which we clearly need growth over the long-term future. I will sketch our thinking about goals for what is called "man-in-the-system," and for our research and technology base.

A key problem now recognized more clearly as a major direction for future research and development is really a cluster of problems pertaining to people. The Defense Department is many people: pilots, infantrymen, intelligence officers, commanders, raw trainees, computer operators, research and development professionals, managers, and on and on. And all of these people participate in "the system." But too often our systems do not really fit the man.

We are beginning to expand efforts in education and training; in human factors engineering; in manpower analyses for all equipment in advanced research and development; in improved equipment for the individual soldier's vision, fire-power, protection and mobility; and an improved understanding of the environmental conditions affecting man/machine performance. At some point in the future, as this work succeeds, we will have developed really matched capabilities for men, equipment and the operational environment.

In each of these areas—so easily listed, so difficult to assess adequately—there are millions of people and man-hours and dollars at stake. These are, in many ways, the most important potential payoff fields of the future. Though our data base is limited, our theory limited, I believe the possible improvements are enormous.

The second area of significance for one to two decades from now is Project Themis. As you may know, Project Themis is our new university research program. It is designed to create—using the President's phrase—new academic departmental "centers of excellence." Our goal is to stimulate the development of new university groups, active in defense-relevant basic research, in geographic areas and institutions which have not previously received substantial DOD support.

I regard this program—funded at about $20 million this year and, Congress willing, expected to expand by almost 50 percent next year—as an exciting initiative. In a sense, it is an experiment and we are delighted with the reaction so far.

We received nearly 500 preliminary proposals from almost 200 universities, requesting almost $400 million. Note that the proposal requests amounted to almost 20 times more money than we have available! On balance, the proposals were of high technical quality. By mid-June, we will have evaluated the detailed proposals. We then will begin awarding contracts for about 50 centers, funding each at roughly $200,000 per year, with advance funding to permit schools to make commitments for three years. Our present plan is to add about 50 new centers each year for the next three years. We will begin another round of solicitations later this year.

Based on payoffs from the last 20 years of university research, I am convinced that Project Themis can be successful, and that it merits more attention by you and your colleagues. For this new program is precisely the kind to ensure against any possible technological plateau. Make no mistake—we do not believe that $200 thousand per year can create an institutional center of excellence. But we do know—from experience—that consistent support of able leaders of doctoral-level research can create departmental excellence, and that this, in turn, can catalyze the growth of an institution. We have no intention of reducing our support of existing academic centers of excellence. What we are doing in Themis is broadening and defining our research and technology base to support our future national security.

Disclosure of information.

Before concluding, I want to touch again on issues central to the role of the press in defense research and development. I have already mentioned some, but would like to return to the tougher ones.

I quoted Secretary McNamara's statement on freedom of information earlier. I wholeheartedly support this pledge for maximum disclosure of unclassified information: to inform the American public, to maintain a clarifying public debate on major issues, to reach the rest of the world, and to remove any doubts in the eyes of our adversaries about our strength and our desire for peace with freedom.

Questions arise, obviously, about the possible release of classified information, and about the classification criteria. It seems to me that a complicating factor is not anyone's failure to appreciate the need for security precautions. It is, in part, the challenge of prying open any kind of secrecy. I believe that all the facts necessary for an informed public discussion are available on an unclassified basis. The problem, I suppose, as James Reston put it recently, is that it is easier to get "a breathless presentation of the news, featuring the flaming lead and the big headline" if you can tag the news as a "secret."

Some people say there is overclassification. They are right. But be careful. Some of this is caused by a conservatism based upon the need to make difficult judgments on national security policy under conditions of uncertainty. Our job is to ensure that the necessary secrecy is maintained. Your job is to educate the public on national security without compromising our security.

I believe that you can and usually do get adequate information. Discretion need not displace truth. And we are, as a nation, indebted to those reporters and columnists who understand these issues and act in the public interest.

There is another, perhaps tougher problem in reporting research and development news. Obvious but often underrated, it is simply the technical complexity and uncertainty surrounding most research and development work.

Frequently one is asked by reporters to give estimates on the performance, costs, schedules of research and development projects. If one hesitates or begs off completely, there is irritation or criticism about excessive secrecy. In my experience, the difficulty is that there simply isn't a good estimate available. Sometimes a complete answer requires a sophisticated set of caveats. However, everybody wants a number which magically resolves their arguments or sells their story. To confess, I do, too. But at times there just isn't a simple answer.

I have touched on limited areas of defense research and development: a few of our objectives, some lessons learned, and common problems. I have tried also to deal squarely with some issues which I thought were sensitive and significant from your perspective.

I approached this occasion with great care, some anxiety, and a good deal of ignorance about your preferences and perceptions. I hope very much that we can maintain a symbiotic rather than a hostile or wary relationship. We have a collective responsibility to analyze some difficult public issues, to serve the public interest, and to report a responsible analysis with integrity. The stakes are very high—national security.

Military Economic Impact

(Continued from page 3)

shortage. Examples of these skills are: tool and die makers; machinists; metal workers; forge workers, extruders, pressmen; foundrymen; prosthetics; book binders; engravers; and watchmakers.

Whether this shortage of skilled labor has to do with higher education of our young people, the lack of interest by young people in an apprentice profession, I do not know nor do the job specialists to whom I have spoken. But that acute vacancies have existed in these trades for some time, and are worsening, is not denied. And what is true is that the young people do not fill these vacancies. Doesn't industry have a stake in this?

I think one reacts to economic conflicts by counter moves within stated policy. One holds to competition where possible but assures continuous production. One holds production to effective levels by use of inventory, but assures an inventory for contingency plans. One consumes what is necessary, but gauges consumption to objectives. One uses industrial priorities where necessary but attempts to absorb only that part of production necessary. I can only say to you that it is a fascinating business and, as a business, it has its effects on people. If we can keep our mind on doing the best we can for the greatest number of people, we can sleep at night.

What is industry's answer?

ABOUT PEOPLE

DEPARTMENT OF DEFENSE

Lt. Gen. Leighton I. Davis, USAF, will become Commandant, Industrial College of the Armed Forces, Washington, D.C., on July 1. He is now serving as Commander, National Range Div., Air Force Systems Command.

Maj. Gen. Emmett M. Tally Jr., USAF, has been assigned as Commander of the Defense Industrial Supply Center, Philadelphia, Pa., effective in August. He will succeed **Brig. Gen. John D. Hines, USA,** who has been assigned as Commander, Defense General Supply Center, Richmond, Va., effective Sept. 1 relieving **Maj. Gen. Ray J. Laux, USA,** who will retire Aug. 31.

Col. James T. Johnson, USAF, has been named Dep. Dir., Materiel & Services, Defense Communications Agency Planning Group.

Col. McLean W. Elliott, USAF, has been assigned as Asst. Dir. for Ranges and Space Ground Support, Office of the Dir., Defense Research and Engineering.

Col. Robert J. Meyer, USAF, has been named Dir., Aircraft and Missiles, Office of Asst. Secretary of Defense (Installations and Logistics).

Col. John G. Wheelock III, USA, has been designated Dir., European Region, Office of Asst. Secretary of Defense (International Security Affairs).

Capt. Ross A. Porter, (SC), USN, has been named Commander of the Defense Logistics Service Center, Battle Creek, Mich.

Capt. Theodore B. Purvis, Jr., (SC), USN, has been assigned as Dep. Commander, Defense Electronics Supply Center, Dayton, Ohio.

DEPARTMENT OF THE ARMY

Maj. Gen. Harry W. O. Kinnard has been named Commanding General, Army Combat Development Command. Prior to the assignment, Gen. Kinnard served as Dep. Asst. Chief of Staff for Force Development, U. S. Army.

Maj. Gen. Frank J. Sackton, Secretary, General Staff, Army Chief of Staff Office, has been nominated for appointment to lieutenant general and assignment as Army Comptroller.

Col. James P. Luckey, Dep. Commander, Rock Island Arsenal, has been reassigned to the Army Armor Center, Fort Knox, Ky.

DEPARTMENT OF THE NAVY

Adm. Thomas H. Moorer has been nominated for appointment as Chief of Naval Operations. He will succeed **Adm. David L. MacDonald** who is retiring. **Vice Adm. Ephraim P. Holmes** has been appointed to succeed Adm. Moorer as Commander in Chief, Atlantic and U. S. Atlantic Fleet, and Supreme Allied Commander, Atlantic.

VAdm. I. J. Galantin, Chief of Naval Material, has been promoted to the rank of admiral in accordance with Senate confirmation designating the position of Chief of Naval Material as a Navy admiral position.

Richard A. Beaumont, Dep. Under Secretary of the Navy for Manpower, has resigned from full time duties but will remain with the Navy for an interim period on a part-time basis until his successor is named.

RAdm. John M. Alford has been assigned as Dep. Commander and Chief of Staff, Military Sea Transportation Service.

RAdm. William S. Guest, has assumed command as Chief of Naval Air Reserve Training with additional duty as Commandant, Ninth Naval District, Great Lakes, Ill.

RAdm. David C. Richardson, has been designated as Asst. Chief of Naval Operations (Air).

Dr. W. Deming Lewis, President of Lehigh University, has been named Chairman, Naval Research Advisory Committee, replacing retiring chairman **Garrison Norton.**

Capt. James C. Matheson has relieved **Capt. Thomas B. Owen** as Dir. of the Naval Research Laboratory, Washington, D.C. Capt. Owen has been named the new Chief of Naval Research.

The following captain assignments have been announced by the Bureau of Personnel:

Capt. Eugene F. Anderson Jr., (SC), Commanding Officer, Naval Supply Depot, Philadelphia, Pa.; **Capt. Stuart M. Ball,** (SC), Commanding Officer, Naval Supply Depot, Seattle, Wash.; **Capt. William J. Francy,** (CEC), Commanding Officer, Naval Public Works Center, Great Lakes, Ill.; **Capt. James W. Montgomery,** Commanding Officer, Naval Development and Training Center, San Diego, Calif.; **Capt. Julian E. Rawls,** Dep. Commander, Navy Weapons Laboratory, Dahlgren, Va.; and **Capt. Colin J. Ricketts,** Commanding Officer, Naval Missile Center, Point Mugu, Calif.

DEPARTMENT OF THE AIR FORCE

Gen. Kenneth B. Hobson, Commander, Air Force Logistics Command, will retire from the Air Force Aug. 1.

Lt. Gen. Thomas P. Gerrity has been nominated for promotion to general and reassignment as Commander, Air Force Logistics Command. **Maj. Gen. Robert G. Ruegg** has been nominated for promotion to lieutenant general and assignment as Dep. Chief of Staff, (Systems and Logistics), Air Force Headquarters, relieving Gen. Gerrity.

Lt. Gen. Jack G. Merrell, Air Force Comptroller, has moved to Germany to succeed Gen. Agan as Vice Commander-in-Chief, U.S. Air Forces in Europe. **Lt. Gen. Theodore R. Milton,** will replace Gen. Merrell as Air Force Comptroller.

Relieving Gen. Milton as Inspector General of the Air Force will be **Lt. Gen. Joseph H. Moore,** who moves to the Pentagon from duty as Vice Commander-in-Chief, Pacific Air Forces. **Lt. Gen. James V. Edmundson** will succeed Gen. Moore.

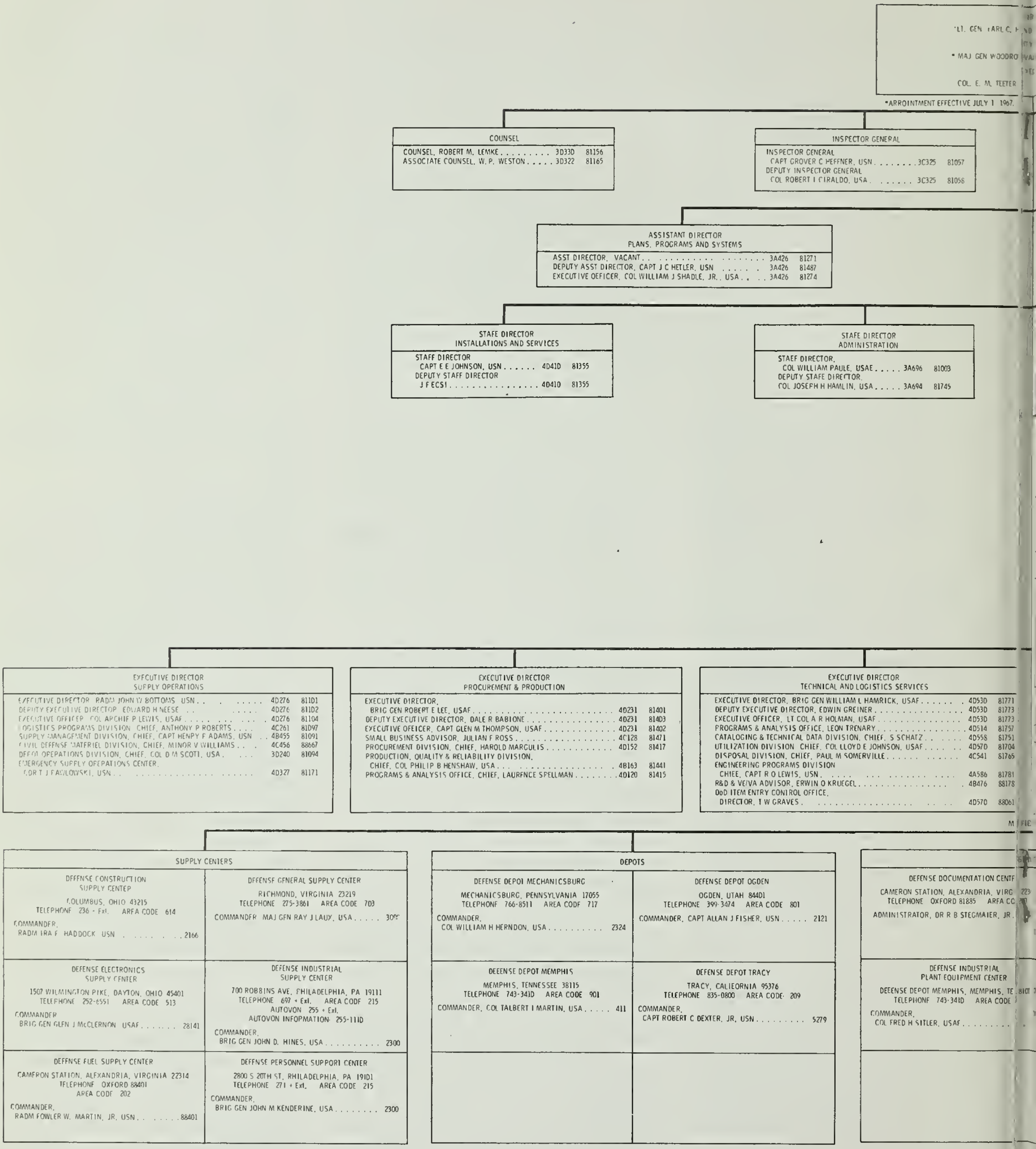
Maj. Gen. Jack J. Catton has been named for promotion to lieutenant general and assigned to relieve **Lt. Gen. Robert J. Friedman** as Dep. Chief of Staff, (Programs and Resources), Air Force Headquarters. Gen. Friedman will assume duties as Chief of Staff, U.S. Forces Korea and Chief of Staff, UN Command, Korea.

DI

DEFENSE

CAMERON STATIC

TELEPHONE: OXFORD



*LT. GEN EARL C.

* MAJ GEN WOODRO

COL. E. M. TEETER

*APPOINTMENT EFFECTIVE JULY 1 1967.

COUNSEL

COUNSEL, ROBERT M. LEMKE	3D330	81156
ASSOCIATE COUNSEL, W. P. WESTON	3D322	81165

INSPECTOR GENERAL

INSPECTOR GENERAL CAPT GROVER C HEFFNER, USN	3C325	81057
DEPUTY INSPECTOR GENERAL COL ROBERT I CIRALDO, USA	3C325	81056

ASSISTANT DIRECTOR PLANS, PROGRAMS AND SYSTEMS

ASST DIRECTOR, VACANT	3A426	81271
DEPUTY ASST DIRECTOR, CAPT J C HETLER, USN	3A426	81487
EXECUTIVE OFFICER, COL WILLIAM J SHADLE, JR., USA	3A426	81274

STAFF DIRECTOR INSTALLATIONS AND SERVICES

STAFF DIRECTOR CAPT E E JOHNSON, USN	4D410	81355
DEPUTY STAFF DIRECTOR J FECSI	4D410	81355

STAFF DIRECTOR ADMINISTRATION

STAFF DIRECTOR, COL WILLIAM PAULE, USAF	3A696	81003
DEPUTY STAFF DIRECTOR, COL JOSEPH H HAMLIN, USA	3A694	81745

EXECUTIVE DIRECTOR SUPPLY OPERATIONS

EXECUTIVE DIRECTOR, RADM JOHN W BOTTOMS, USN	4D276	81101
DEPUTY EXECUTIVE DIRECTOR, EDWARD H NEESE	4D276	81102
EXECUTIVE OFFICER, COL ARCHIE P LEWIS, USAF	4D276	81104
LOGISTICS PROGRAMS DIVISION, CHIEF, ANTHONY P ROBERTS	4C261	81097
SUPPLY MANAGEMENT DIVISION, CHIEF, CAPT HENRY F ADAMS, USN	4B455	81091
CIVIL DEFENSE MATERIEL DIVISION, CHIEF, MINOR V WILLIAMS	4C456	88667
DEPOT OPERATIONS DIVISION, CHIEF, COL D M SCOTT, USA	3D240	81094
EMERGENCY SUPPLY OPERATIONS CENTER, CDR T J PAWLOWSKI, USN	4D327	81171

EXECUTIVE DIRECTOR PROCUREMENT & PRODUCTION

EXECUTIVE DIRECTOR, BRIG GEN ROBERT E LEE, USAF	4D231	81401
DEPUTY EXECUTIVE DIRECTOR, DALE R BABIONE	4D231	81403
EXECUTIVE OFFICER, CAPT GLEN M THOMPSON, USAF	4D231	81402
SMALL BUSINESS ADVISOR, JULIAN F ROSS	4C128	81471
PROCUREMENT DIVISION, CHIEF, HAROLD MARGULIS	4D152	81417
PRODUCTION, QUALITY & RELIABILITY DIVISION, CHIEF, COL PHILIP B HENSHAW, USA	4B163	81441
PROGRAMS & ANALYSIS OFFICE, CHIEF, LAURENCE SPELLMAN	4D120	81415

EXECUTIVE DIRECTOR TECHNICAL AND LOGISTICS SERVICES

EXECUTIVE DIRECTOR, BRIG GEN WILLIAM L HAMRICK, USAF	4D530	81771
DEPUTY EXECUTIVE DIRECTOR, EDWIN GREINER	4D530	81773
EXECUTIVE OFFICER, LT COL A R HOLMAN, USAF	4D530	81773
PROGRAMS & ANALYSIS OFFICE, LEON TRENARY	4D514	81757
CATALOGING & TECHNICAL DATA DIVISION, CHIEF, S SCHATZ	4D558	81751
UTILIZATION DIVISION, CHIEF, COL LLOYD E JOHNSON, USAF	4D570	81704
DISPOSAL DIVISION, CHIEF, PAUL M SOMERVILLE	4C541	81765
ENGINEERING PROGRAMS DIVISION CHIEF, CAPT R O LEWIS, USN	4A586	81781
R&D & VE/VA ADVISOR, ERWIN O KRUEGEL	4B476	88178
DoD ITEM ENTRY CONTROL OFFICE, DIRECTOR, T W GRAVES	4D570	88061

M

SUPPLY CENTERS

DEFENSE CONSTRUCTION SUPPLY CENTER

COLUMBUS, OHIO 43215
TELEPHONE 236 - Ext. AREA CODE 614

COMMANDER,
RADM IRA F HADDOCK USN 2166

DEFENSE GENERAL SUPPLY CENTER

RICHMOND, VIRGINIA 23219
TELEPHONE 275-3861 AREA CODE 703

COMMANDER MAJ GEN RAY J LAUX, USA 30

DEFENSE ELECTRONICS SUPPLY CENTER

1507 WILMINGTON PIKE, DAYTON, OHIO 45401
TELEPHONE 252-6551 AREA CODE 513

COMMANDER
BRIG GEN GLEN J McCLERNON USAF 28141

DEFENSE INDUSTRIAL SUPPLY CENTER

700 ROBBINS AVE, PHILADELPHIA, PA 19111
TELEPHONE 697 + Ext. AREA CODE 215
AUTOVON 255 + Ext.
AUTOVON INFORMATION 255-1110

COMMANDER,
BRIG GEN JOHN D. HINES, USA 2300

DEFENSE FUEL SUPPLY CENTER

CAMERON STATION, ALEXANDRIA, VIRGINIA 22314
TELEPHONE OXFORD 88401
AREA CODE 202

COMMANDER,
RADM FOWLER W. MARTIN, JR, USN 88401

DEFENSE PERSONNEL SUPPORT CENTER

2800 S 20TH ST, PHILADELPHIA, PA 19101
TELEPHONE 271 + Ext. AREA CODE 215

COMMANDER,
BRIG GEN JOHN M KENDERINE, USA 2300

DEPOTS

DEFENSE DEPOT MECHANICSBURG

MECHANICSBURG, PENNSYLVANIA 17055
TELEPHONE 766-8511 AREA CODE 717

COMMANDER,
COL WILLIAM H HERNDON, USA 2324

DEFENSE DEPOT OGDEN

OGDEN, UTAH 84401
TELEPHONE 399-3474 AREA CODE 801

COMMANDER, CAPT ALLAN J FISHER, USN 2121

DEFENSE DEPOT MEMPHIS

MEMPHIS, TENNESSEE 38115
TELEPHONE 743-3410 AREA CODE 901

COMMANDER, COL TALBERT I MARTIN, USA 411

DEFENSE DEPOT TRACY

TRACY, CALIFORNIA 95376
TELEPHONE 835-0800 AREA CODE 209

COMMANDER,
CAPT ROBERT C DEXTER, JR, USN 5279

DEFENSE DOCUMENTATION CENTE

CAMERON STATION, ALEXANDRIA, VIRG
TELEPHONE OXFORD 81885 AREA CO

ADMINISTRATOR, DR R B STEGMAIER, JR.

DEFENSE INDUSTRIAL PLANT EQUIPMENT CENTER

DEFENSE DEPOT MEMPHIS, MEMPHIS, TE
TELEPHONE 743-3410 AREA CODE

COMMANDER,
COL FRED H SITLER, USAF . . . .

June/July 1967

CY OF

PLY AGENCY

ANDRIA, VA. 22314

ENSION (AREA CODE 202)

R		
F	3A150	81111
CTOR		
N	3A150	81113
E		
	3A150	81115

SPECIAL ASSISTANT FOR PUBLIC AFFAIRS

SPECIAL ASST FOR PUBLIC AFFAIRS EUGENE F HART	3A210	81135
ASST FOR PUBLIC AFFAIRS, HERBERT L SCHON	3A215	81242

COMPTROLLER

COMPTROLLER, W J GARVIN	3D528	81201
DEPUTY COMPTROLLER, COL ALBERT A TISONE USAF	3D528	81203

STAFF DIRECTOR MILITARY PERSONNEL

STAFF DIRECTOR CAPT G T POLLICH, USN	3A675	81137
DEPUTY STAFF DIRECTOR, MRS J L WELCH	3A675	81137

STAFF DIRECTOR CIVILIAN PERSONNEL

STAFF DIRECTOR, WALTER G INGERSKI	3D118	81025
DEPUTY STAFF DIRECTOR, FRANKLIN C KELSO	3D118	81026

DEPUTY DIRECTOR FOR CONTRACT ADMINISTRATION SERVICES

DEPUTY DIRECTOR, MAJ GEN JOHN A GOSHORN, USA	8A310	88091
ASST DEPUTY DIRECTOR, WILLIAM R SENTER	8A310	88091
EXECUTIVE OFFICER, LT COL MICHAEL J TASHJIAN USAF	8A310	88091

OFFICE OF MANAGEMENT REVIEW

CHIEF COL HENRY SIMON USAF	8A349	88570

OFFICE OF MANAGEMENT CONTROL

CHIEF COL CHARLES A SANFORD, USA	8B343	88550

EXECUTIVE DIRECTOR CONTRACT ADMINISTRATION

EXECUTIVE DIRECTOR, COL ROBERT J V ALLING, USAF	8A430	88704
DEPUTY EXECUTIVE DIRECTOR, WILLIAM V GORDON	8A430	88705
EXECUTIVE OFFICER LT COL WILLIS K DICKSON USAF	8A430	88706
FINANCIAL SERVICES DIVISION CDR ROY M McDANIEL USN	8A485	88615
CONTRACT DIVISION COL WILLIAM J KEATING USA	8B461	88625
INDUSTRIAL MATLS SCT DIV, MARTIN REINSTEIN	8A454	88707
ASST FOR SMALL BUSINESS, GEORGE C TOLTON	8B390	88605
CONTRACT ADMINISTRATION PANEL MEMBER, BERTRAM EISENSTEIN	8A454	81787

EXECUTIVE DIRECTOR QUALITY ASSURANCE

EXECUTIVE DIRECTOR CAPT F G SCARBOROUGH, USN	8D468	88754
DEPUTY EXECUTIVE DIRECTOR GLENN J SOARES	8D468	88754
EXECUTIVE OFFICER, MAJ PHILIP A TILSON USAF	8D477	88754
MATERIAL QUALITY DIVISION COL WILLIAM A BRIDENSTINE, USA	8C479	88658
PLANS & POLICIES DIVISION THERON M VINING	8D490	88745
QA ENGINEERING DIVISION GEORGE G. GULA	8C444	88785
SPEC SAFETY & FLIGHT OPNS DIVISION LT COL HARRY R KAIN USAF	8D490	88655

EXECUTIVE DIRECTOR PRODUCTION

EXECUTIVE DIRECTOR JOHN S GROUPE	8D425	88647
DEPUTY EXECUTIVE DIRECTOR COL WILLIAM A FICKLING, USAF	8D425	88648
EXECUTIVE OFFICER, CDR JOHN C BANGERT, USN	8D425	88649
INDUSTRIAL LABOR RELATIONS, DONALD J. BERTSCH	8D458	88661
PRODUCTION MGMT DIVISION COL HERBERT L HABERSTROH, USA	8D435	88651
INDUSTRIAL RESOURCES & MOBILIZATION PLANNING DIVISION HAROLD F EICHELKRAUT	8D416	88764
PRODUCTION ENGINEERING DIVISION, COL WALTER R WENK USAF	8D416	88132
TRANS & TRAFFIC MGMT DIVISION, THEODORE B GUDIS	8B402	88721
SYSTEMS SUPPORT DIVISION COL LEIGH W WORTHING USA	8C403	88544

OFFICE OF PLANS AND MANAGEMENT

CHIEF GORDON T YAMADA	8A334	88571
DEPUTY CHIEF, COL KENNETH R JOHNSON USA	8A334	88571
EXECUTIVE OFFICER CDR JAMES G TAFF USN	8A334	88571
COST REDUCTION COORDINATOR THOMAS H E WINSHURST	8A319	88041
MGMT DATA DIVISION COL JEFFERSON T HOLMAN USA	8B388	88564
MGMT ENGINEERING & PROGRAMS DIVISION RICHARD G BRUNER	8A378	88580

OFFICE OF INDUSTRIAL SECURITY

CHIEF CAPT FRANK LARSEN USN	8A392	88594
DEPUTY CHIEF GILBERT H DAVIS	8A392	88594
PROGRAMS & SYSTEMS DIVISION THOMAS J O'BRIEN	8A402	88601
FIELD MGMT DIVISION COL BENJAMIN C MARSHALL USAF	8A415	88701
INTERNATIONAL PROGRAMS DIVISION JOHN J NORTON	8A398	88571

ADMINISTRATIVE OFFICE

CHIEF ROBERT J. PELLERIN	8B318	88541

TIVITIES

CENTERS

DEFENSE LOGISTICS SERVICES CENTER BATTLE CREEK FEDERAL CENTER BATTLE CREEK, MICH 49016 TELEPHONE 962-6511 AREA CODE 616 COMMANDER, COL FRANK MERCER USAF 6666
DEFENSE SUPPLY AGENCY ADMINISTRATIVE SUPPORT CENTER CAMERON STATION, ALEXANDRIA, VIRGINIA 22314 TELEPHONE OXFORD 81003 AREA CODE 202 COMMANDER, COL WILLIAM PAULE, USAF 81003

MAJOR FIELD ACTIVITIES

DEFENSE CONTRACT ADMINISTRATION SERVICES REGIONS (DCASRs)

DCASR ATLANTA 3100 MAPLE DRIVE, N E ATLANTA, GA 30305 TELEPHONE 261 7310 AREA CODE 404 DIRECTOR COL LOREN P MURRAY JR USAF 411	DCASR CLEVELAND 1367 EAST SIXTH ST, CLEVELAND, OHIO 44114 TELEPHONE 861-4960 AREA CODE 216 DIRECTOR COL NORMAN I DENNIS, USA 140	DCASR LOS ANGELES 11099 S LA CIENEGA BLVD LOS ANGELES CALIF 90045 TELEPHONE 643 + Ext. AREA CODE 213 DIRECTOR, BRIG GEN ARTHUR E EXON, USAF . . . 0230	DCSAR SAN FRANCISCO 866 MALCOLM ROAD BURLINGAME CALIF 94010 TELEPHONE 692-0300 AREA CODE 415 DIRECTOR COL BEVERLY O MONTGOMERY USAF 201
DCASR BOSTON 666 SUMMER STREET BOSTON MASS 02210 TELEPHONE 542-6000 AREA CODE 617 DIRECTOR, COL FRANK A BOGART, USA 405	DCASR DALLAS 500 SOUTH ERVAY ST, DALLAS, TEXAS 75201 TELEPHONE RI 9-2371 AREA CODE 214 DIRECTOR, CAPT WALTER G NORMILE USN . . . . . . RI 9-2371	DCASR NEW YORK 770 BROADWAY NEW YORK, N Y 10003 TELEPHONE 677-3030 AREA CODE 212 DIRECTOR, BRIG GEN CLARENCE W CLAPSADDLE JR USA . . . 284	DCSAR ST. LOUIS 1136 WASHINGTON AVENUE ST LOUIS MO 63101 TELEPHONE AM 3 + Ext AREA CODE 314 DIRECTOR CAPT RAYMOND S SULLIVAN USN . 3501
DCSAR CHICAGO O'HARE INTERNATIONAL AIRPORT P O BOX 66475, CHICAGO, ILL 60666 TELEPHONE 694-3031 AREA CODE 312 DIRECTOR, COL JOHN F GIBBONS, USAF 2360	DCASR DETROIT 1580 E GRAND BLVD, DETROIT, MICHIGAN 48211 TELEPHONE 923-0100 AREA CODE 313 DIRECTOR, CAPT WALTER W TOLSON USN . 201	DCASR PHILADELPHIA P O BOX 7478, PHILADELPHIA PA 19101 TELEPHONE 271 + Ext. AREA CODE 215 DIRECTOR COL GERALD JOHNSON, JR USA 2620	

MEETINGS AND SYMPOSIA

JULY

1967 Annual Conference on **Nuclear and Space Radiation Effects**, July 10—14, at Ohio State University, Columbus, Ohio. Sponsors: Institute of Electrical and Electronics Engineers, NASA Office of Advanced Research and Technology, Office of Naval Research, Air Force Office of Scientific Research and the Department of the Army. Contact: Mr. E. E. Conrad, Harry Diamond Laboratories, Washington, D.C., 20438, phone (202) OXford 6–9126.

1967 Summer Seminar on **Mathematics of the Decision Sciences**, at Stanford University, Palo Alto, Calif., July 10–Aug. 11. Sponsors: Air Force Office of Scientific Research, Atomic Energy Commission, Army Research Office, Small Business Administration, National Bureau of Standards, Office of Naval Research, National Institutes of Health and the National Science Foundation. Contact: Maj. John Jones Jr., (SRMA), Air Force Office of Scientific Research, 1400 Wilson Blvd., Arlington, Va. 22209, phone (202) OXford 4–5261.

Symposium on **Electromagnetic Compatibility (EMC)**, July 18–20, at Shoreham Hotel, Washington, D. C. Sponsor: Institute of Electrical and Electronics Engineers (IEEE). Follow-on DOD Electromagnetic Compatibility Conference, July 20, at Shoreham Hotel with classified session, July 21, at Department of Interior Auditorium, Washington, D.C. Sponsors: Military Services and DOD Electromagnetic Compatibility Analysis Center, Annapolis, Md. Contacts: IEEE Symposium: James S. Hill, 6706 Deland Drive, Springfield, Va. 22150, phone (703) 345–8900; DOD–EMC Conference: Lt. Col. Curtis B. Goodwin, USAF, Chief, Plans and Programs Directorate, ECAC, North Severn, Annapolis, Md. 21402, phone (301) 268–7711, Ext. 8814.

Seminar on **Stratosphere and Mesosphere**, July 24–Aug. 4., at Stansstead, Quebec, Canada. Co-sponsors: Air Force Cambridge Research Laboratories and McGill University. Contact: H. S. Muench, (CRHB), Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Mass. 01730, phone (617) 274–6100, Ext. 2541.

Earth's Particles and Fields Symposium, July 31–Aug. 11, at Freising, Germany. Sponsors: Air Force Cambridge Research Laboratories, Department of the Army, Office of Naval Research, Atomic Support Agency, and North Atlantic Treaty Organization. Contact: L. Katz, (CRFC), Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Mass. 01730, phone (617) 274–6100, Ext. 3177.

SEPTEMBER

Second Symposium on **Automatic Control in Space**, Sept. 4–8, at Vienna, Austria. Sponsor: International Federation of Automatic Control. Contact: J. A. Aseltine, TRW Systems, Space Park Drive, Houston, Tex. 77058.

International Symposium on **Information Theory**, Sept. 11–15, at Athens, Greece. Sponsors: Air Force Office of Scientific Research, Information Theory Group of the Institute of Electrical and Electronics Engineers and the International Radio Scientific Union. Contact: Lt. Col. B. R. Agins, (SRMA), Air Force Office of Scientific Research, 1400 Wilson Blvd., Arlington, Va., 22209, Phone (202) OXford 4–5261.

International Symposium on **Materials—Key to Effective Use of the Sea**, Sept. 12–14, at the Statler-Hilton Hotel, New York, N.Y. Co-sponsors: Naval Applied Science Laboratory and the Polytechnic Institute of Brooklyn, N.Y. Contact: D. H. Kallas, Associate Technical Director, Naval Applied Science Laboratory, Flushing and Washington Avenues, Brooklyn, N.Y. 11251.

Advanced **Composite Structures** Symposium, Sept. 19–21, at Hilton Hotel, Denver, Colo. Sponsor: Air Force Materials Laboratory. Contact: Mr. Tomashot, (MAC), Air Force Materials Laboratory, Wright-Patterson AFB, Ohio 45433, phone (513) 253–7111, Ext. 55317.

Eighth Symposium on **Physics and Nondestructive Testing**, Sept. 19–21, at Dayton, Ohio. Sponsor: Air Force Materials Laboratory, Wright-Patterson AFB, Ohio 45433.

Joint **Power Generation** Conference, Sept. 24–28, at the Statler-Hilton Hotel, Detroit, Mich. Co-sponsors: Institute of Electrical and Electronics Engineers and the American Society of Mechanical Engineers. Contact: Carl Shabtach, General Electric Co., Schenectady, N.Y.

Fourth International Conference on **Atmospheric and Space Electricity**, Sept. 29–Oct. 6, at Lucerne, Switzerland. Sponsors: Air Force Cambridge Research Laboratories, Army, Navy, National Science Foundation and National Aeronautics and Space Administration. Contact: M. B. Gilbert, (CRTE), Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Mass. 01731, phone (617) 274–6100, Ext. 3633.

OCTOBER

Twenty-second annual **Transportation and Logistics** Forum, Oct. 3–6, at the Biltmore Hotel, Los Angeles, Calif. Sponsor: National Defense Transportation Association. Contact: Les Richards, 3416 S. La Cienega Blvd., Los Angeles, Calif. 90016.

Conference on **Reinforced Metal Matrix Composites**, Oct. 10–12, at Wright-Patterson AFB, Ohio. Co-Sponsors: Air Force Materials Laboratory and the University of Dayton.

Eleventh Annual **Organic Chemistry** Conference, Oct. 12–13, at Natick, Mass. Sponsors: National Academy of Science-National Research Council, Advisory Board on Military Personnel Supplies, and Organic Chemistry Laboratory, Pioneering Research Div., Army Natick Laboratories. Contact: Dr. L. Long Jr., Head, Organic Chemistry Lab., (PRD), Army Natick Laboratories, Natick, Mass. 01760, phone (617) 653–1000, Ext. 414.

Conference on the **Exploding Wire Phenomenon**, Oct. 18–20, at Boston, Mass. Sponsor: Air Force Cambridge Research Laboratories. Contact: W. G. Chace, (CRFA), Air Force Cambridge Research Laboratories, L. G. Hanscom Field, Mass. 01730, phone (617) 274–6100, Ext. 4926.

Over-Classification Increases Costs

The Directorate for Classification Management, Office of the Assistant Secretary of Defense (Administration), has noted that the cost of procurement increases materially and unnecessarily, when material or hardware of an unclassified, off-the-shelf variety is procured as a classified item.

A particular item of off-the-shelf unclassified hardware may be an essential part of a classified system or equipment. Tubes and crystals which control frequencies are notable examples. In other cases, off-the-shelf unclassified material, when associated with a particular organization or activity, may reveal a research or development interest which itself is classified. In such cases, it is not the bare hardware or material itself which reveals classified information; rather, it is the association between the unclassified hardware or material and the classified system or effort that leads to the disclosure of classified information. Accordingly, the fact of the association requires classification.

The following suggestions are offered to contractors in connection with their procurement of off-the-shelf items of hardware of material, particularly in subcontracting or straight purchase situations:

- Concentrate on identifying the classified information which the customer wants to protect. Do not assume that hardware or material must be classified just because it will become or is a part of a properly classified end item. Determine what, if any, sensitive information can be obtained from the hardware or material alone.
- Distinguish between classified information which necessarily is contained in the procurement paperwork and the hardware or material which, by itself, may not reveal any classified information.
- Avoid all unnecessary mention of the association, whenever the association of an item of hardware or material with other material constitutes an item of information which requires classification. Often a particular item of hardware or material can be procured without any hint as to its intended use.
- Do not use classified information unless its use is necessary for understanding. Strictly limit the number of classified documents as well as the amount of classified information contained in such documents. Do not put classified information into a contract or purchase order unless it cannot be avoided. Instead, put it in a classified appendix or some other form so that the receiving party also can limit the availability.
- Do not give all personnel working on a project all of the classified information involved in the project. Provide each party only what is needed to get the job done.

Navy Begins Test of Computing System

The U.S. Navy has initiated its first full-scale test of a large remote computing time-sharing effort at the Naval Ordnance Test Station (NOTS), China Lake, Calif., utilizing the UNIVAC 1108–II System. This large-scale information processing system, primarily installed to support the varied and complex research and development work at NOTS, is also used to provide primary computational support to an experiment, linking the RADLAB (Radiological Defense Laboratory, San Francisco, Calif.) to the NOTS installation on a customer-user basis.

Communications circuits between the two laboratories, located 425 miles apart, will be activated to provide millisecond response between the central computer installation at NOTS and the scientists in San Francisco. It is anticipated that by September 1967 both the batch processing and simultaneous conversational type capability will be fully operational.

The current goal of the Naval Material Command is to achieve, during the 1970–71 time frame, considerable additional capacity through the establishment of similar remote computing/time-sharing centers within pertinent geographical areas of the command.

New Requirements for Classified Storage To Become Effective in March 1968

New requirements for defense contractors in the storage of classified material are slated to go into effect on March 1, 1968. After that date cognizant security offices of Defense Contract Administration Services of the Defense Supply Agency will be unable to certify the safeguarding ability of any defense contractor unless the new requirements have been met by the company.

The changes provide for more stringent measures in protecting Top Secret and Secret material as specified in paragraph 14a of the March 1, 1965, edition of the Industrial Security Manual. There are no substantial changes for Confidential material.

The principal change concerns the methods for storing Top Secret and Secret material. After March 1, 1968, all Top Secret material must be stored either in containers listed in the Federal Supply Schedule or in Class A vaults. In addition, supplemental controls, such as guards or alarm systems, will be required during nonworking hours for protection of top secret material. Secret material may be stored in either a Federal Supply Schedule container or in a Class B vault without supplemental controls. Secret material may be stored in other than Federal Supply Schedule containers provided supplemental controls are used.

Spacetrack Unit To Move Next Year

The 73rd Aerospace Surveillance Wing, which operates Air Defense Command's world-wide spacetrack system, will move its headquarters from Ent AFB, Colo., to Tyndall AFB, Fla., in July 1968.

Relocation of the 73rd will permit utilization of vacated facilities at Tyndall and improve control of the prime operational squadron located in Florida.

The 73rd, which was upgraded from squadron to wing level in January, is concerned primarily with satellite detection and tracking. It is directly responsible for the operation of all Air Force spacetrack system sensors.

STATUS OF FUNDS

DEPARTMENT OF DEFENSE

Military Functions and Military Assistance Program
Quarterly Report

Prepared by:
Directorate for Financial Analysis and Control
Office of the Assistant Secretary of Defense (Comptroller)
Room 3C 839, The Pentagon Phone: (202) OXford 7-2332

NOTE: All expenditure amounts are on a net Treasury basis (gross payments less reimbursement collections), whereas obligations and unpaid obligations are on a gross basis (inclusive of reimbursable activity performed by components of DOD for each other). Therefore, unpaid obligations as of the end of the reporting month cannot be computed from other figures in this report.

Expenditures

Third Quarter, Fiscal Year 1967

(Amounts in Thousands)

Department of Defense

	Expenditures				Unpaid Obligations	
	Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	At Start of Year	As of March 31, 1967
Military Personnel:						
Active forces	1,440,365	1,391,586	1,502,472	12,414,430	589,609	1,035,706
Reserve forces	56,866	58,389	70,914	650,704	156,797	132,055
Retired pay	156,090	157,060	157,943	1,350,529	8,052	8,333
Undistributed	28,473	56,454	9,922	14,432	—	−14,432
Total—Military Personnel	1,681,793	1,663,489	1,741,251	14,430,095	754,459	1,161,662
Operation and Maintenance	1,584,749	1,555,566	1,774,500	13,625,638	3,022,637	3,482,656
Procurement:						
Aircraft	792,680	715,380	885,043	6,260,808	7,508,668	7,888,636
Missiles	155,944	155,583	145,054	1,412,403	2,083,027	1,850,437
Ships	94,505	109,251	116,648	969,340	2,867,571	3,179,185
Tracked combat vehicles	29,053	21,250	23,791	157,142	449,010	558,265
Ordnance, vehicles, and related equipment	350,280	356,185	425,487	2,649,150	6,110,216	6,539,299
Electronics and communications	88,517	100,775	124,103	897,188	1,855,134	1,721,710
Other procurement	114,590	110,842	132,567	1,069,753	1,582,769	1,695,939
Undistributed	54,673	−78,102	50,006	314,438	−337,631	−653,783
Total—Procurement	1,680,246	1,491,159	1,902,704	13,730,224	22,118,764	22,779,687
Research, Development, Test, and Evaluation:						
Military sciences	78,203	74,242	92,579	749,435	891,487	809,543
Aircraft	92,724	60,357	121,378	813,612	539,278	642,235
Missiles	159,965	201,031	246,808	1,738,227	1,097,218	1,415,247
Astronautics	12,579	59,906	123,196	708,657	599,546	460,876
Ships	27,824	19,940	26,799	237,348	204,792	191,508
Ordnance, vehicles, and related equipment	28,958	28,119	34,818	256,900	237,072	255,714
Other equipment	60,069	52,970	60,364	474,734	480,164	487,168
Program-wide management and support	39,145	33,756	32,653	327,018	154,656	135,596
Undistributed	17,848	−23,434	−17,889	107,238	−145,833	−254,103
Total—Research, Development, Test, & Eval.	517,314	506,886	720,708	5,413,170	4,058,380	4,143,782
Military Construction	111,665	136,598	138,393	1,259,712	1,309,722	1,089,754
Family Housing	44,810	48,008	51,195	419,622	130,266	103,226
Civil Defense	7,345	8,022	10,748	74,684	77,877	82,539
Other—Special Foreign Currency Program	—	—	—	—	—	—
Revolving and Management Funds [a]	283,603	99,335	271,866	1,059,584	658,208	−398,764
Subtotal—Military Functions	5,911,525	5,509,061	6,611,367	50,012,729	32,130,313	32,444,543
Military Assistance	50,683	69,966	83,836	510,238	1,816,161	2,207,078
TOTAL—DEPARTMENT OF DEFENSE	5,962,208	5,579,027	6,695,203	50,522,967	33,946,474	34,651,622

[a] Includes In-Transit Stock Fund charges not reflected in Service amounts below.
NOTE: Detail may not add to rounded totals.

Department of the Navy

	Expenditures				Unpaid Obligations	
	Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	At Start of Year	As of March 31, 1967
Military Personnel:						
Active forces	429,294	415,563	444,793	3,696,029	141,289	292,808
Reserve forces	9,977	10,902	13,898	110,427	20,898	19,615
Undistributed	−4,265	−7,394	18,235	9,960	—	−9,960
Total—Military Personnel	435,006	419,071	476,926	3,816,416	162,187	302,463
Operation and Maintenance	438,905	406,650	458,549	3,738,395	1,230,060	1,075,064
Procurement:						
Aircraft	222,198	186,076	259,543	1,943,354	2,818,833	2,684,009
Missiles	20,692	22,202	49,379	318,038	560,035	454,334
Ships	94,505	109,251	116,648	969,340	2,867,571	3,179,185
Tracked combat vehicles	4,356	−704	1,350	6,013	16,445	23,604
Ordnance, vehicles, and related equipment	78,442	57,614	99,272	652,632	1,418,223	1,505,237
Electronics and communications	31,948	28,342	49,052	293,455	589,237	522,316
Other procurement	43,627	45,573	33,587	366,546	726,357	803,622
Undistributed	2,319	−21,238	14,253	17,429	—	−17,424
Total—Procurement	498,090	427,115	623,084	4,566,807	8,996,701	9,154,885
Research, Development, Test, and Evaluation:						
Military sciences	10,892	12,824	13,666	148,660	137,459	116,350
Aircraft	21,995	17,850	31,664	180,762	159,020	131,946
Missiles	46,529	47,803	85,008	515,283	249,864	387,292
Astronautics	1,640	1,320	1,505	16,836	15,876	10,822
Ships	27,824	19,940	26,799	237,348	204,792	191,508
Ordnance, vehicles, and related equipment	9,871	7,980	19,018	122,104	97,150	100,893
Other equipment	5,750	6,212	9,714	58,918	61,511	65,819
Program-wide management and support	12,546	6,737	2,423	71,141	88,594	77,795
Undistributed	501	−1,678	−3,351	−230	—	230
Total—Research, Development, Test, & Eval.	137,548	118,988	186,447	1,350,823	1,014,266	1,082,655
Military Construction	52,134	55,640	63,630	697,202	323,771	−30,145
Revolving and Management Funds	40,464	91,997	87,909	91,663	617,445	480,437
TOTAL—DEPARTMENT OF THE NAVY	1,602,146	1,519,461	1,896,544	14,261,305	12,344,431	12,065,361

Department of the Army

	Expenditures				Unpaid Obligations	
	Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	At Start of Year	As of March 31, 1967
Military Personnel:						
Active forces	564,516	540,736	610,021	4,760,254	320,524	496,645
Reserve forces	30,583	39,681	46,060	429,395	114,434	93,585
Undistributed	33,526	61,959	−8,642	3,372	—	−3,372
Total—Military Personnel	628,625	642,376	647,439	5,193,021	434,958	586,858
Operation and Maintenance	566,200	555,142	660,134	4,975,145	881,122	1,239,386
Procurement:						
Aircraft	73,613	70,946	97,704	677,151	1,137,653	1,093,203
Missiles	33,930	35,379	−21,043	173,999	537,097	453,222
Tracked combat vehicles	24,697	21,954	22,441	151,129	432,565	534,661
Ordnance, vehicles, and related equipment	221,276	239,381	264,861	1,482,863	3,421,137	3,092,183
Electronics and communications	28,890	40,378	44,154	299,246	738,404	666,731
Other procurement	48,498	46,067	53,066	400,065	666,038	697,801
Undistributed	47,959	−54,251	36,134	297,222	−337,631	−636,552
Total—Procurement	478,864	399,853	497,320	3,481,677	6,595,263	5,901,247
Research, Development, Test, and Evaluation:						
Military sciences	11,562	12,720	15,151	114,775	120,589	137,917
Aircraft	11,653	7,642	15,237	91,757	92,925	85,158
Missiles	54,741	67,616	80,952	544,926	461,337	554,284
Astronautics	1,479	1,282	1,882	16,833	20,741	12,876
Ordnance, vehicles, and related equipment	19,087	20,139	15,800	134,796	139,922	154,821
Other equipment	24,020	21,680	27,159	186,128	197,438	191,655
Program-wide management and support	5,617	9,470	5,469	62,484	31,310	32,688
Undistributed	4,142	−18,368	−11,278	106,653	−145,833	−253,518
Total-Research, Development, Test, & Eval	132,302	122,181	150,372	1,258,352	918,429	915,881
Military Construction	24,273	38,151	36,517	225,053	518,995	703,836
Revolving and Management Funds	57,650	−10,219	48,116	−191,130	40,077	−70,322
TOTAL—DEPARTMENT OF THE ARMY	1,887,914	1,747,483	2,039,898	14,942,117	9,388,844	9,276,886

Department of the Air Force

	Expenditures				Unpaid Obligations	
	Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	At Start of Year	As of March 31, 1967
Military Personnel:						
Active forces	446,555	435,287	447,658	3,958,147	127,796	246,253
Reserve forces	16,306	7,806	10,956	110,882	21,465	18,855
Undistributed	−788	1,889	329	1,100	—	−1,100
Total—Military Personnel	462,073	444,982	458,943	4,070,129	149,261	264,008
Operation and Maintenance	494,748	524,281	564,121	4,216,579	805,314	1,070,266
Procurement:						
Aircraft	496,869	458,358	527,796	3,640,303	3,552,182	4,111,424
Missiles	101,322	98,002	116,718	920,366	985,895	942,881
Ordnance, vehicles & related equipment	50,306	59,103	61,263	512,129	1,269,060	1,939,648
Electronics and communications	25,830	31,682	29,954	296,513	519,055	527,084
Other procurement	19,481	16,746	43,381	282,910	153,725	154,918
Undistributed	4,482	−2,579	−358	−231	—	211
Total—Procurement	698,290	661,311	778,755	5,651,990	6,479,917	7,676,166
Research, Development, Test, and Evaluation:						
Military sciences	13,851	11,876	14,846	113,781	131,634	131,119
Aircraft	59,076	34,865	74,477	541,093	287,333	425,131
Missiles	58,695	85,612	80,848	678,018	386,017	473,671
Astronautics	9,460	57,304	119,809	674,988	562,929	437,178
Other equipment	30,299	25,078	23,491	229,688	221,215	229,694
Program-wide management and support	20,982	17,549	24,761	193,393	34,752	25,113
Undistributed	13,205	−3,388	−3,260	815	—	−815
Total—Research, Development, Test, & Eval.	205,567	228,896	334,972	2,431,776	1,623,880	1,721,089
Military Construction	34,516	41,136	36,973	326,296	442,931	399,593
Revolving and Management Funds	74,279	−1,993	18,498	2,382	686	−6,873
TOTAL—DEPARTMENT OF THE AIR FORCE	1,969,472	1,898,613	2,192,263	16,699,152	9,501,989	11,124,250

Defense Agencies/Office of the Secretary of Defense

	Expenditures				Unpaid Obligations	
	Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	At Start of Year	As of March 31, 1967
Military Personnel:						
Retired Pay	156,090	157,060	157,943	1,350,529	8,052	8,333
Operation and Maintenance	84,895	69,493	91,697	695,520	106,140	97,939
Procurement:						
Ordnance, vehicles, and related equipment	256	87	91	1,526	1,796	2,231
Electronics and communications	1,849	373	943	7,974	8,438	5,579
Other procurement	2,984	2,456	2,533	20,232	36,649	39,598
Undistributed	−87	−34	−23	18	—	−18
Total—Procurement	5,002	2,881	3,545	29,750	46,883	47,390
Research, Development, Test, and Evaluation:						
Military sciences	41,898	36,822	48,916	372,219	501,805	424,157
Military Construction	741	1,671	1,273	11,161	24,025	16,470
Family Housing	44,810	48,008	51,195	419,622	130,266	103,226
Other—Special Foreign Currency Program	—	—	—	—	—	—
Revolving and Management Funds	97,933	−92,850	118,026	369,500	—	−14,836
TOTAL—DEFENSE AGENCIES/OSD	431,370	223,084	472,595	3,248,301	817,172	682,679

Office of Civil Defense

Civil Defense	7,345	8,022	10,748	74,684	77,877	82,539
Revolving and Management Funds	—	—	—	−1	—	—
TOTAL—OFFICE OF CIVIL DEFENSE	7,345	8,022	10,748	74,683	77,877	82,539

Military Assistance

Military Personnel	2	—	242	249	72	735
Operation and Maintenance	21,259	33,371	9,936	200,754	364,523	324,033
Procurement:						
Aircraft	8,480	10,893	12,456	126,948	339,429	301,692
Missiles	1,593	5,934	2,355	21,486	67,918	48,138
Ships	1,641	280	9,620	14,604	114,172	134,806
Ordnance, vehicles, and related equipment	5,904	10,643	10,338	66,002	248,867	306,851
Electronics and communications	4,653	1,633	4,993	34,068	181,174	153,507
Other procurement	2,221	7,936	5,294	33,019	138,193	132,620
Total—Procurement	24,489	37,320	45,057	296,128	1,089,753	1,077,614
Research, Development, Test, and Evaluation	15	—	63	175	3,084	1,589
Military Construction	4,995	4,416	13,378	36,951	151,977	176,425
Revolving Fund	−7,737	7,859	4,970	6,343	158,605	630,552
Undistributed	7,658	−13,002	10,192	−30,362	48,148	−3,870
TOTAL—MILITARY ASSISTANCE	50,683	69,966	83,836	510,238	[a]1,816,161	2,207,078

[a] Consistent with the decision to treat reservations under limitation .002 as obligations in reports commencing with FY 1967, the unpaid obligations at start of year are comprised of obligations/reservations and, thus, differ from the unpaid obligations as of June 30 1966, as shown in the report for June 30, 1966.

Obligations

Third Quarter, Fiscal Year 1967

(Amounts in Thousands)

Department of Defense

	Available for Obligation	Obligations				Unobligated Balance March 31, 1967
		Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	
Military Personnel						
Active forces	16,207,056	1,472,919	1,464,391	1,485,343	13,071,471	3,135,584
Reserve forces	937,814	59,235	64,163	72,107	640,359	297,455
Retired pay	1,780,000	156,343	156,981	157,244	1,350,881	429,119
Total—Military Personnel	18,924,870	1,688,497	1,685,536	1,714,694	15,062,712	3,862,158
Operation and Maintenance	18,157,178	1,806,923	1,540,484	1,792,865	15,294,709	2,862,469
Procurement:						
Aircraft	11,622,681	711,836	625,767	928,954	7,005,747	4,616,934
Missiles	2,530,877	168,212	226,220	140,466	1,383,871	1,147,006
Ships	5,170,986	177,992	55,256	96,177	1,362,464	3,808,522
Tracked combat vehicles	525,573	27,239	33,011	28,713	304,543	221,030
Ordnance, vehicles and related equipment	6,434,461	391,972	274,540	415,775	3,589,262	2,845,199
Electronics and communications	2,053,768	128,147	94,060	134,499	852,386	1,201,382
Other procurement	2,344,607	132,809	142,209	179,542	1,258,681	1,085,926
Undistributed	−653,695	—	—	—	—	−653,696
Total—Procurement	30,029,258	1,738,206	1,451,064	1,924,126	15,756,951	14,272,307
Research, Development, Test, & Evaluation:						
Military sciences	1,223,887	102,954	56,012	89,022	715,979	507,908
Aircraft	1,488,877	55,059	95,063	105,352	931,351	557,526
Missiles	2,509,272	153,689	131,162	284,173	2,110,792	398,480
Astronautics	1,426,489	72,251	56,092	121,464	763,548	662,941
Ships	390,220	26,137	15,319	20,640	240,027	150,193
Ordnance, vehicles, and related equipment	420,798	13,219	26,664	19,347	297,797	123,001
Other equipment	872,061	52,728	37,881	43,864	511,452	360,609
Program-wide management and support	712,379	48,046	39,715	38,356	445,567	266,812
Emergency Fund	5,853	—	—	—	—	5,853
Undistributed	45,297	—	—	—	—	45,297
Total—Research, Development, Test, & Eval.	9,095,130	524,079	457,915	722,215	6,016,513	3,078,616
Military Construction	2,768,501	179,088	88,401	142,120	1,146,952	1,621,549
Family Housing	729,131	46,931	42,583	42,774	397,984	331,146
Civil Defense	141,550	6,697	10,446	10,210	81,609	59,941
Other—Special Foreign Currency Program	7,348	—	—	—	—	7,348
Subtotal—Military Functions	79,852,965	5,990,422	5,276,428	6,349,006	53,757,431	26,095,535
Military Assistance	742,866	65,740	174,243	5,178	558,151	184,716
TOTAL—DEPARTMENT OF DEFENSE	80,595,832	6,056,162	5,450,671	6,354,183	54,315,581	26,280,250

Department of the Army

	Available for Obligation	Obligations				Unobligated Balance March 31, 1967
		Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	
Military Personnel						
Active forces	6,286,664	587,217	600,320	580,619	5,063,474	1,223,189
Reserve forces	636,644	37,524	41,939	47,340	420,555	216,089
Total—Military Personnel	6,923,308	624,741	642,259	627,960	5,484,030	1,439,278
Operation and Maintenance	6,296,514	686,161	554,109	802,589	5,781,629	514,885
Procurement:						
Aircraft	1,022,726	37,159	40,456	81,785	643,983	378,743
Missiles	443,134	17,394	65,265	26,725	211,100	232,034
Tracked combat vehicles	503,583	25,569	32,244	22,035	291,371	212,212
Ordnance, vehicles and related equipment	2,004,883	154,883	187,452	196,035	1,655,398	349,485
Electronics and communications	660,239	37,044	20,003	40,401	258,151	402,088
Other procurement	863,902	59,864	58,648	97,201	456,588	407,314
Undistributed	181,149	—	—	—	—	181,149
Total—Procurement	6,679,616	331,913	404,070	464,181	3,516,590	3,163,026
Research, Development, Test, & Evaluation:						
Military sciences	221,322	14,560	8,668	11,845	148,815	72,507
Aircraft	140,267	2,674	7,975	19,076	86,842	53,425
Missiles	774,745	23,464	14,045	136,035	648,029	126,716
Astronautics	21,678	435	1,684	229	9,288	12,390
Ordnance, vehicles and related equipment	233,991	5,260	20,441	6,311	171,936	62,055
Other equipment	377,062	21,649	17,745	25,343	194,111	182,951
Program-wide management and support	97,688	6,921	6,605	4,705	75,878	21,810
Undistributed	9,918	—	—	—	—	9,918
Total—Research, Development, Test, & Eval.	1,876,671	74,960	77,166	203,544	1,334,899	541,772
Military Construction	1,327,998	84,787	34,704	47,796	568,077	759,921
TOTAL—DEPARTMENT OF THE ARMY	23,104,108	1,802,562	1,712,307	2,146,070	16,685,225	6,418,882

Department of the Navy

	Available for Obligation	Obligations				Unobligated Balance March 31, 1967
		Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	
Military Personnel:						
Active forces	4,876,592	433,410	412,823	435,982	3,874,853	1,001,739
Reserve forces	149,320	11,070	11,690	12,219	108,928	40,392
Total—Military Personnel	5,025,912	444,480	424,513	448,201	3,983,781	1,042,131
Operation and Maintenance	5,312,710	465,857	420,555	384,677	3,950,650	1,362,060
Procurement:						
Aircraft	3,664,594	214,938	286,064	191,590	1,837,896	1,826,698
Missiles	526,764	38,928	19,653	26,896	225,605	301,159
Ships	5,170,986	177,992	55,256	96,177	1,362,464	3,808,522
Tracked combat vehicles	21,990	1,669	768	6,678	13,172	8,818
Ordnance, vehicles and related equipment	1,685,726	115,924	95,537	39,015	749,162	936,564
Electronics and communications	691,299	33,818	27,315	33,599	232,662	458,637
Other procurement	1,043,656	58,482	60,103	46,924	490,184	553,472
Undistributed	−810,852	—	—	—	—	−810,853
Total—Procurement	11,994,163	641,752	544,694	440,880	4,911,143	7,083,017
Research, Development, Test, and Evaluation:						
Military sciences	210,460	10,632	10,773	19,101	139,396	71,064
Aircraft	445,288	20,614	21,507	16,770	153,744	291,544
Missiles	769,066	35,652	78,173	63,614	657,300	111,766
Astronautics	25,367	555	269	1,603	11,706	13,661
Ships	390,220	26,137	15,319	20,640	240,027	150,193
Ordnances, vehicles and related equipment	186,807	7,959	6,223	13,036	125,861	60,946
Other equipment	117,288	16,314	3,824	5,665	66,705	50,583
Program-wide management and support	353,243	21,936	16,129	13,866	173,287	179,956
Undistributed	4,524	—	—	—	—	4,524
Total—Research, Development, Test, & Eval.	2,502,263	139,799	152,217	154,295	1,568,026	934,237
Military Construction	755,409	41,926	30,385	38,486	291,755	463,654
TOTAL—DEPARTMENT OF THE NAVY	25,590,457	1,733,812	1,572,366	1,466,538	14,705,355	10,885,102

Department of the Air Force

	Available for Obligation	Obligations				Unobligated Balance March 31, 1967
		Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	
Military Personnel:						
Active forces	5,043,800	452,292	451,248	468,742	4,133,144	910,676
Reserve forces	151,850	10,641	10,534	12,548	110,876	40,934
Total—Military Personnel	5,195,650	462,933	461,782	481,290	4,244,020	951,680
Operation and Maintenance	5,645,478	564,848	494,456	520,237	4,824,170	821,308
Procurement:						
Aircraft	6,935,361	459,739	299,247	655,579	4,523,868	2,411,493
Missiles	1,560,979	111,890	141,302	86,845	947,166	613,813
Ships	—	—	—	—	—	—
Ordnance, vehicles and related equipment	1,740,495	121,081	−8,630	179,874	1,182,717	557,778
Electronics and communications	684,568	56,719	46,333	59,224	356,458	328,110
Other Procurement	370,957	12,276	20,705	32,571	284,103	86,854
Undistributed	−32,307	—	—	—	—	−32,307
Total—Procurement	11,260,053	761,704	498,957	1,014,093	7,294,312	3,965,741
Research, Development, Test, & Evaluation:						
Military sciences	208,637	25,094	12,885	16,370	132,580	76,057
Aircraft	903,322	31,771	65,581	69,506	690,765	212,557
Missiles	965,461	94,573	38,944	84,524	805,463	159,998
Astronautics	1,379,444	71,261	54,139	119,632	742,554	636,890
Other equipment	377,711	14,765	16,312	12,856	250,636	127,075
Program-wide management and support	261,448	19,189	16,981	19,785	196,402	65,046
Undistributed	30,855	—	—	—	—	30,855
Total—Research, Development, Test, & Eval.	4,126,875	256,654	204,845	322,670	2,818,400	1,308,475
Military Construction	665,650	52,274	23,149	55,002	283,515	382,136
TOTAL—DEPARTMENT OF THE AIR FORCE	26,893,706	2,098,413	1,683,190	2,393,290	19,464,416	7,429,290

Defense Agencies/Office of the Secretary of Defense

	Available for Obligation	Obligations				Unobligated Balance March 31, 1967
		Jan. 1967	Feb. 1967	March 1967	Cum. thru March 31, 1967	
Military Personnel:						
Retired Pay	1,780,000	156,343	156,981	157,244	1,350,881	429,119
Operation and Maintenance	902,476	90,057	71,364	85,363	738,260	164,216
Procurement:						
Ordnance, vehicles and related equipment	3,357	84	181	851	1,985	1,372
Electronics and communications	17,662	566	409	1,275	5,115	12,547
Other procurement	66,092	2,187	2,753	2,846	27,806	38,286
Undistributed	8,315	—	—	—	—	8,315
Total—Procurement	95,426	2,837	3,343	4,972	34,906	60,520
Research, Development, Test, and Evaluation:						
Military sciences	583,468	52,668	23,686	41,706	295,188	288,290
Emergency Fund	5,853	—	—	—	—	5,853
Undistributed	—	—	—	—	—	—
Total—Research, Development, Test, & Eval.	589,321	52,668	23,686	41,706	295,188	294,133
Military Construction	19,443	102	162	838	3,606	15,838
Family Housing	729,131	46,931	42,583	42,774	397,984	331,146
Other—Special Foreign Currency Program	7,348	—	—	—	—	7,348
TOTAL—DEFENSE AGENCIES/OSD	4,123,145	348,937	298,121	332,896	2,820,825	1,302,320

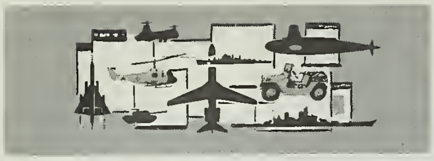
Office of Civil Defense

Civil Defense	141,550	6,697	10,446	10,210	81,609	59,941

Military Assistance

Military Personnel	335	—	88	259	335	—
Operation and Maintenance	355,166	37,348	12,098	5,926	213,768	141,398
Procurement:						
Aircraft	89,375	15,321	30,037	1,533	89,210	165
Missiles	1,902	−1,050	844	−360	1,706	196
Ships	48,009	−654	21,251	−579	35,238	12,771
Ordnance, vehicles and related equipment	124,007	−7,134	72,562	24	123,985	22
Electronics and communications	6,410	−21,083	11,313	3,458	6,400	10
Other procurement	28,847	19,007	−6,216	−6,526	27,459	1,388
Total—Procurement	298,549	4,405	129,791	−2,451	283,997	14,552
Research, Development, Test, and Evaluation	−950	−2	—	−395	−1,321	371
Military Construction	89,847	28,924	29,062	1,501	61,400	28,447
Undistributed	−81	−4,935	3,202	339	−29	−52
TOTAL—MILITARY ASSISTANCE	742,866	65,740	174,243	5,178	558,151	184,716

NOTE: Commencing with reports in FY 1967, reservations under limitation .002 of the Military Assistance Program are being treated as obligations.



DEFENSE PROCUREMENT

Contracts of $1,000,000 and over awarded during the month of May 1967.

DEFENSE SUPPLY AGENCY

1—**Bibb Mfg. Co.**, Macon, Ga. $1,317,200. 356,000 linear yards of herring bone twill cloth. Defense Personnel Support Center, Philadelphia, Pa.

3—**Star Kist Food**, Terminal Island, Calif. $1,242,773. 2,697,733 pounds of canned tuna. Defense Personnel Support Center, Philadelphia, Pa.

5—The Defense Fuel Supply Center, Alexandria, Va., has awarded the following contracts for JP-5 jet fuel:

Humble Oil & Refining Co., Houston, Tex. $7,341,600. 77,280,000 gallons.

Mobil Oil Corp., New York, N.Y. $5,335,928. 53,505,200 gallons.

Sun Oil Co., Philadelphia, Pa. $5,009,715. 47,880,000 gallons.

Gulf Oil Corp., New York, N.Y. $4,092,900. 42,000,000 gallons.

Hess Oil & Chemical Corp., Perth Amboy, N.J. $3,069,978. 30,000,000 gallons.

Union Oil Co. of Calif., Los Angeles, Calif. $2,131,189. 17,388,000 gallons.

Edgington Oil Refineries, Long Beach, Calif. $1,467,600. 11,500,000 gallons.

Douglas Oil Co. of Calif., Los Angeles, Calif. $1,318,900. 11,000,000 gallons.

12—**American Tent & Canvas, Inc.**, LaFollette, Tenn. $4,200,000. 6,000 large general purpose tents. Defense Personnel Support Center, Philadelphia, Pa.

—**Camel Mfg. Co.**, Knoxville, Tenn. $3,457,934. 4,854 large general purpose tents. Defense Personnel Support Center, Philadelphia, Pa.

15—**Valley Metallurgical Processing Co.**, Essex, Conn. $1,417,309. 1,874,500 lbs. of atomized magnesium powder. Defense General Supply Center, Richmond, Va.

—**Eastman Kodak Co.**, Rochester, N.Y. $1,043,756. 20,360 rolls of aerial photographic film. Defense General Supply Center, Richmond, Va.

—**J. P. Stevens & Co.**, New York, N.Y. $6,428,090. 3,300,000 yards of polyester fiber and wool tropical cloth. Defense Personnel Support Center, Philadelphia, Pa.

—**Burlington Industries**, New York, N.Y. $2,499,154. 1,193,000 yards of polyester fiber and wool tropical cloth. Defense Personnel Support Center, Philadelphia, Pa.

16—**S. I. Handling Systems**, Easton, Pa. $1,663,207. Mechanized material handling system to be installed at the Defense Construction Supply Center, Columbus, Ohio, which is the contracting agency.

18—**Firestone Tire & Rubber Co.**, Akron, Ohio. $3,323,768. 495 runway surfacing membrane sets and 796 taxiway surfacing membrane sets. Defense Construction Supply Agency, Columbus, Ohio.

—**B. G. Colton & Co.**, New York, N.Y. $2,051,242. 1,459,241 linear yards of cotton duck cloth. Defense Personnel Support Center, Philadelphia, Pa.

19—**American Oil Co.**, Chicago, Ill. $2,112,309. Various quantities of petroleum products. Defense Fuel Supply Center, Alexandria, Va.

—**Mobil Oil Corp.**, New York, N.Y. $2,030,123. Various quantities of petroleum products. Defense Fuel Supply Center, Alexandria, Va.

—**J. P. Stevens & Co.**, New York, N.Y. $3,599,984. 4,991,608 linear yards of cotton and rayon cloth. Defense Personnel Support Center, Philadelphia, Pa.

—**Genesco, Inc.**, Florence, Ala. $1,612,781. 600,000 men's light-weight winter undershirts. Defense Personnel Support Center, Philadelphia, Pa.

—**Bates Fabrics**, New York, N.Y. $1,572,694. 1,078,000 yards of cotton and nylon oxford cloth. Defense Personnel Support Center, Philadelphia, Pa.

CONTRACT LEGEND

Contract information is listed in the following sequence: Date — Company — Value — Material or Work to be performed—Location Work Performed—Contracting Agency.

—**Sperry Rand Corp.**, Gainesville, Fla. $1,338,490. Electron tubes. Defense Electronics Supply Center, Dayton, Ohio.

—**Robert DeMay Co.**, Hamlet, N.C. $1,197,217. 46,100 water sterilizing bags. Defense Construction Supply Center, Columbus, Ohio.

22—**Cavalier Bag Co.**, Lumberton, N.C. $1,848,280. 9,424,000 polypropylene sand bags. Defense General Supply Center, Richmond, Va.

23—**LaCrosse Garment Mfg. Co.**, LaCrosse, Wis. $1,008,352. 67,160 arctic sleeping bags. Defense Personnel Support Center, Philadelphia, Pa.

25—The Defense Fuel Supply Center, Alexandria, Va., has awarded the following contracts for petroleum products:

Atlantic Richfield Co., Los Angeles, Calif. $5,846,000. 2,400,000 barrels of Navy Special.

Cities Service Oil Co., New York, N.Y. $5,634,480. 1,200,000 barrels of Type I Combat Gasoline.

Marathon Oil Co., New York, N.Y. $3,105,700. 780,000 barrels of Grade DF-1 Diesel.

Texaco, Inc., New York, N.Y. $2,853,750. 750,000 barrels of Diesel Marine.

Hess Oil & Chemical Corp., Perth Amboy, N.J. $2,362,255. 302,000 barrels of Combat Type I Gasoline.

Continental Oil Co., Houston, Tex. $2,160,540. 540,000 barrels of Diesel Marine.

Atlantic Richfield Co., Los Angeles, Calif. $1,799,000. 400,000 barrels of Diesel Marine.

Golden Eagle Refining Co., Los Angeles, Calif. $1,434,500. 550,000 barrels of Navy Special.

Continental Oil Co., Houston, Tex. $1,240,310. 310,000 barrels of Diesel Marine.

Standard Oil Co. of Calif., San Francisco, Calif. $1,182,000. 600,000 barrels of Number Six Fuel Oil.

—**J. P. Stevens & Co.**, New York, N.Y. $5,784,369. 5,720,000 yards of cotton and polyester poplin cloth. Defense Personnel Support Center, Philadelphia, Pa.

—**Erwin Mills**, New York, N.Y. $2,485,178. 2,451,375 yards of wind resistant sateen cotton cloth. Defense Personnel Support Center, Philadelphia, Pa.

26—The following contracts have been awarded by the Defense Fuel Supply Center, Alexandria, Va., for JP-4 jet fuel:

Humble Oil & Refining Co., Houston, Tex. $24,021,918. 246,384,000 gallons.

Mobil Oil Corp., New York, N.Y. $21,971,976. 209,171,000 gallons.

Mobil Oil Corp., Houston, Tex. $2,119,000. 20,000,000 gallons.

Standard Oil Co. of Calif., San Francisco, Calif. $18,455,478. 175,309,000 gallons.

Continental Oil Co., Houston, Tex. $11,759,880. 118,902,800 gallons.

Texaco, Inc., New York, N.Y. $10,888,500. 105,000,000 gallons.

Union Oil Co. of Calif., Los Angeles, Calif. $9,503,739. 88,099,200 gallons.

Sinclair Refining Co., New York, N.Y. $8,767,464. 85,320,000 gallons.

Gulf Oil Corp., New York, N.Y. $8,374,800. 84,000,000 gallons.

American Oil Co., Chicago, Ill. $7,960,815. 82,435,000 gallons.

Ashland Oil & Refining Co., Ashland, Ky. $7,308,308. 70,600,000 gallons.

Coastal States Petrochemical Co., Houston, Tex. $6,806,902. 63,250,000 gallons.

Golden Eagle Refining Co., Los Angeles, Calif. $5,423,040. 46,200,000 gallons.

Cities Service Oil Co., New York, N.Y. $4,890,876. 47,754,000 gallons.

Atlantic Richfield Co., Los Angeles, Calif. $4,596,900. 42,000,000 gallons.

Atlantic Richfield Co., Philadelphia, Pa. $4,410,000. 40,000,000 gallons.

Adobe Refining Co., Midland, Tex. $4,330,348. 40,000,000 gallons.

Bell Oil & Gas Co., Bartlesville, Okla. $4,281,455. 45,000,000 gallons.

Okmulgee Refining Co., Dallas, Tex. $4,146,846. 42,900,000 gallons.

Phillips Petroleum Co., Bartlesville, Okla. $4,085,154. 39,030,000 gallons.

Shamrock Oil & Gas Corp., Amarillo, Tex. $4,055,100. 38,000,000 gallons.

Sun Oil Co., Philadelphia, Pa. $3,978,828. 37,800,000 gallons.

Howell Refining Co., San Antonio, Tex. $3,973,676. 36,750,000 gallons.

Delta Refining Co., Memphis, Tenn. $3,817,693. 35,850,000 gallons.

American Petrofina Co. of Tex., Dallas, Tex. $3,763,970. 41,000,000 gallons.

Fort Worth Refining Co., Houston, Tex. $3,707,280. 36,000,000 gallons.

Tidewater Oil Co., New York, N.Y. $3,449,418. 30,912,000 gallons.

Good Hope Refineries, Houston, Tex. $3,321,600. 32,000,000 gallons.

Hess Oil & Chemical Corp., Perth Amboy, N.J. $3,049,500. 30,000,000 gallons.

Douglas Oil Co. of Calif., Los Angeles, Calif. $2,430,900. 21,000,000 gallons.

MacMillan Ring-Free Oil Co., Los Angeles, Calif. $2,208,000. 20,000,000 gallons.

Sioux Oil Co., Newcastle, Wyo. $2,170,422. 18,000,000 gallons.

Tonkawa Refining Co., Arnett, Okla. $2,038,410. 20,000,000 gallons.

Sunray DX Oil Co., Tulsa, Okla. $1,957,232. 20,917,600 gallons.

Tesoro Petroleum Corp., San Antonio, Tex. $1,919,000. 17,000,000 gallons.

Triangle Refineries, Houston, Tex. $1,886,072. 16,780,000 gallons.

Fletcher Oil & Refining Co., Wilmington, Calif. $1,625,400. 14,000,000 gallons.

Marathon Oil Co., New York, N.Y. $1,605,576. 15,960,000 gallons.

Sequoia Refining Corp., Corpus Christi, Tex. $1,498,796. 15,500,000 gallons.

Northwestern Refining Co., St. Paul Park, Minn. $1,473,606. 14,000,000 gallons.

Kerr-McGee Corp., Oklahoma City, Okla. $1,429,470. 15,120,000 gallons.

Crystal Flash Petroleum Corp., Indianapolis, Ind. $1,269,000. 11,400,000 gallons.

Hercules Oil Co. of San Diego, Long Beach, Calif. $1,237,750. 10,000,000 gallons.

Champlin Petroleum Co., Fort Worth, Tex. $1,168,800. 12,000,000 gallons.

Hunt Oil Co., Dallas, Tex. $1,162,500. 12,500,000 gallons.

Derby Refining Co., Wichita, Kan. $1,058,938. 12,000,000 gallons.

29—**Alpha Industries**, Knoxville, Tenn. $1,380,724. 195,570 men's field coats with hoods. Defense Personnel Support Center, Philadelphia, Pa.

—**Allen Overall Co.**, Monroe, N.C. $1,298,705. 200,000 men's field coats with hoods. Defense Personnel Support Center, Philadelphia, Pa.

—**Orthopedic Equipment Co.**, Bourbon, Ind. $3,650,572. 235,453 straight chairs. Defense General Supply Center, Richmond, Va.

31—**Bancroft Industries**, Cabot, Ark. $1,015,660. 1,170,116 field caps. Defense Personnel Support Center, Philadelphia, Pa.

ARMY

1—**Ward LaFrance Corp.**, Elmira Heights, N.Y. $1,322,199. 55 fire-fighting trucks. Elmira Heights. Mobility Equipment Command, St. Louis, Mo.

—**Norfolk Dredging Co.**, Norfolk, Va. $1,189,818. Dredging work in Norfolk Harbor. Engineer Dist., Norfolk, Va.

—**Boeing Co.**, Morton, Pa. $3,500,000. Preproduction planning, procurement and production of long lead time materials and items for CH-47B helicopters for the United Kingdom. Morton. Aviation Materiel Command, St. Louis, Mo.

—**AVCO Corp.**, Stratford, Conn. $2,797,313. CH-47 helicopter engines for the United Kingdom. Stratford. Aviation Materiel Command, St. Louis, Mo.

—**Kaiser-Jeep Corp.**, Toledo, Ohio. $1,395,141. 2½-ton trucks with government furnished engines. South Bend, Ind. General Purpose Vehicles Project Manager, Warren, Mich.

—**T. D. O'Connor & Co.**, Cambridge, Mass. $1,144,100. Modification of existing facilities and new construction to load, assemble and pack ammunition at the Hingham Naval Depot Annex, Cohasset, Mass. Engineer Dist., Waltham, Mass.

2—**Civil Works Constructors**, Farmington, Mich. $1,386,000. Work on the Four River Basin Project, Tampa, Fla. Engineer Dist., Jacksonville, Fla.

—**Hupp Corp.**, Canton, Ohio. $3,261,152. Ten and 20-horsepower engines. Canton. Mobility Equipment Command, St. Louis, Mo.

3—**Brown & Root**, Houston, Tex. $1,917,000. Construction of tactical stage field and refueling areas for expanded aviation training facilities at Fort Wolters, Tex. Engineer Dist., Fort Worth, Tex.

—**Barber-Green Co.**, Aurora, Ill. $1,946,494. Eight asphalt mixing plants. Aurora. Mobility Equipment Command, St. Louis, Mo.

—**Isotopes, Inc.**, Westwood, N.J. $1,047,405. Continuation of classified research. Defense Atomic Support Agency, Washington, D.C.

—**Continental Motors**, Muskegon, Mich. $2,914,589. Three and six horsepower gasoline engines. Milwaukee, Wis. Mobility Equipment Command, St. Louis, Mo.

—**Aircraft Radio Corp.**, Boonton, N.J. $1,198,975. Radio test sets. Boonton. Electronics Command, Philadelphia, Pa.

—**Fruehauf Corp.**, Detroit, Mich. $12,622,815. 12-ton semi-trailers. Detroit. Tank Automotive Command, Warren, Mich.

4—**T. L. James & Co.**, Ruston, La. $1,187,537. Work on the Atchafalaya Basin Project, St. Martin and Mary Parishes, La. Engineer Dist., New Orleans, La.

5—**Olin Mathieson Chemical Corp.**, East Alton, Ill. $2,271,963. Ball powder, propellant, chemicals and operations and maintenance activities. Baraboo, Wis. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Olin Mathieson Chemical Corp.**, New York, N.Y. $18,278,450. Propellant charges and bag loading used for various rounds of ammunition. Charlestown, Ind. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Honeywell, Inc.**, Hopkins, Minn. $1,725,780. Metal parts for 40mm projectile fuzes. New Brighton, Minn. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Olin Mathieson Chemical Corp.**, New Haven, Conn. $3,405,132. Ammunition components. New Haven. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Olin Mathieson Chemical Corp.**, East Alton, Ill. $2,135,900. Ammunition components. East Alton. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Remington Arms Co.**, Bridgeport, Conn. $2,468,960. Ammunition components. Bridgeport. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Pettibone-Mulliken Corp.**, Bethesda, Md. $4,148,000. Fork lift trucks. Chicago, Ill. Mobility Equipment Command, St. Louis, Mo.

—**Radalab**, Westbury, N.Y. $5,310,500. Terminal telephones. Westbury. Electronics Command, Philadelphia, Pa.

—**C. H. Leavell**, El Paso, Tex. $14,967,998. Construction of a navigation lock, concrete dam with gated spillway, and appurtenant work at the Jonesville Lock and Dam, Ouachita-Black River Navigation Project, Arkansas and Louisiana. Engineer Dist., Vicksburg, Miss.

—**Allied-Webb**, Bay St. Louis, Miss. $1,435,000. Modification to existing Launch Complex 17 for the NASA Kennedy Space Center. Cape Kennedy, Fla. Engineer Dist., Merritt Island, Fla.

—**D. W. L. General Contractors**, Lancaster, Calif. $1,196,045. Construction of a tactical equipment shop facility; community center facility; and petroleum, oil and lubricant (POL) facilities at Fort Irwin, Calif. Engineer Dist., Los Angeles, Calif.

—**Wisconsin Motor Corp.**, Milwaukee, Wis. $3,002,896. Military standard engines. Milwaukee. Mobility Equipment Command, St. Louis, Mo.

—**I.B.M.**, Washington, D.C. $1,140,618. Lease of pilot equipment for the national Automatic Data Processing Program for Army Materiel Command's logistics management. Electronics Command, Fort Monmouth, N.J.

8—**Mason & Hanger, Silas Mason & Co.**, Lexington, Ky. $1,333,358. 750-lb. bombs and for operation and maintenance activities. Grand Island, Neb. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Hercules Corp.**, Wilmington, Del. $24,193,578. Production of miscellaneous propellants and explosives. Radford, Va. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**U.S. Steel, Pittsburgh**, Pa. $6,308,100. Metal parts for 8-inch howitzer projectiles. $1,000,000. Reactivation, repair and relocation of government equipment. Berwick, Pa. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Kentucky Mfg. Co.**, Louisville, Ky. $2,490,715. 12-ton semi-trailer vans. Louisville. Tank Automotive Command, Warren, Mich.

—**Taubman Co.**, Oak Park, Mich. $1,149,245. Erecting a prefabricated, Government furnished metal building at Joliet Army Ammunition Plant, Ill. Engineer Dist., Chicago, Ill.

—**Slate-Hall**, Portland, Ore. $5,702,765. Work on the Libby Dam Project, Libby, Mont. Engineer Dist., Seattle, Wash.

—**Anthony Co.**, Streator, Ill. $2,184,000. 80 rough terrain, fork lift trucks. Streator. Mobility Equipment Command, St. Louis, Mo.

—**Chrysler Corp.**, Detroit, Mich. $3,823,260. 140 rough terrain, fork lift trucks. Warren, Mich. Mobility Equipment Command, St. Louis, Mo.

—**Norair Engineering Corp.**, Washington, D.C. $3,134,160. Construction of a four-story, enlisted men's barracks building and construction of an addition to an existing mess hall at Fort Myer, Va. Engineer Dist., Norfolk, Va.

9—**Chamberlain Mfg. Corp.**, Waterloo, Iowa. $4,172,270. Metal parts for 105mm smoke projectiles. Waterloo. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Biltmore Construction Co.**, Clearwater, Fla. $3,226,026. Construction of a two-story headquarters command building at MacDill AFB, Fla. Engineer Dist., Jacksonville, Fla.

—**Troup Bros.**, Coral Gables, Fla. $1,316,972. Construction of a canal for the Central and Southern Florida Flood Control Project. New River Junction, Fla. Engineer Dist., Jacksonville, Fla.

—**Sylvania Electric Products**, Needham Heights, Mass. $1,500,000. Classified equipment. Muncy, Pa. Electronics Command. Fort Monmouth, N.J.

U.M.C. Industries, Phoenix, Ariz. $1,728,000. Loading and assembling 81mm illuminating projectiles. Goodyear, Ariz. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Bowen-McLaughlin-York, Inc.**, York, Pa. $4,593,695. 175mm guns, 8-inch howitzers, and light armored recovery vehicles. Bair, Pa. Tank Automotive Command, Warren, Mich.

—**Franchi Construction Co.**, Newton, Mass. $5,897,000. Construction of troop housing and supporting facilities at Fort Devens, Mass. New England Engineer Division, Waltham, Mass.

10—**Intercontinental Mfg. Co.**, Garland, Tex. $3,027,970. Case and adapter Nike Hercules motors. Garland. Army Missile Command, Huntsville, Ala.

—**A. D. Roe Co.**, Louisville, Ky. $1,647,731. Construction of an engine maintenance training building. Fort Knox, Ky. Engineer Dist., Louisville, Ky.

—**Scoville Mfg. Co.**, Waterbury, Conn. $1,597,000. Grenade fuzes. Waterbury. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Raytheon Co.**, Bristol, Tenn. $1,322,190. Bomb fuzes. Bristol. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Philco-Ford Corp.**, Newport Beach, Calif. $1,400,757. 40mm grenade launchers and grenade launcher barrels. Anaheim, Calif. Southwest Procurement Agency, Pasadena, Calif.

11—**Chrysler Corp.**, Detroit, Mich. $1,092,000. Production and inspection engineering services for the M60 A1 and A1E1 tank fire control system. Detroit. Frankford Arsenal, Philadelphia, Pa.

—**Western Electric**, Whippany, N.J. $1,986,360. Research and development effort on the Nike-X missile system. Whippany. Nike-X Project Office, Huntsville, Ala.

—**Olin Mathieson Chemical Corp.**, East Alton, Ill. $1,012,423. Loading and assembling of 81mm illuminating projectiles. Marion, Ill. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Riddle Quarries, Inc.**, Salina, Kan. $1,773,000. Work on the Perry Reservoir Project. Perry, Kan. Engineer Dist., Kansas City, Kan.

—**R. A. Wattson Co.**, North Hollywood, Calif. $1,591,000. Work on the San Gabriel River Channel Project. Between Long Beach and Seal Beach, Calif. Engineer Dist., Los Angeles, Calif.

12—**General Motors**, Detroit, Mich. $5,000,000. Metal parts for 105mm HE projectiles. St. Louis, Mo. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Harvey Aluminum Sales, Inc.**, Torrance, Calif. $9,528,562. Classified work. Milan, Tenn. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Raytheon Co.**, Lexington, Mass. $4,436,539. Ground support equipment and field maintenance equipment for the Hawk missile system. Waltham, Mass. Army Missile Command, Andover, Mass.

—**MacGregor Triangle Co.**, Boise, Idaho. $3,415,201. Work on the Lower Monumental Lock and Dam Project. Snake River, Wash. Engineer Dist., Seattle, Wash.

—**General Motors**, Indianapolis, Ind. $3,345,090. M-113 transmissions. Indianapolis. Tank Automotive Command, Warren, Mich.

—**Construction, Ltd.**, Bordentown, N.J. $2,715,500. Building modification work at Aberdeen Proving Ground, Md. Engineer Dist., Baltimore, Md.

—**Emerson Electric Co.**, St. Louis, Mo. $3,515,000. Helicopter armament subsystems. St. Louis. Army Weapons Command, Rock Island, Ill.

—**Carter Carburetor**, St. Louis, Mo. $1,828,930. Metal parts. St. Louis. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Scoville Mfg. Co.**, Waterbury, Conn. $1,826,272. Metal parts. Waterbury. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Norris Industries**, Los Angeles, Calif. $1,321,824. 152mm projectiles. Los Angeles. Southwest Procurement Agency, Pasadena, Calif.

—**LTV Aerospace Corp.**, Warren, Mich. $2,050,000. Research and development on the extended range Lance missile system. Warren. Army Missile Command, Huntsville, Ala.

—**Honeywell, Inc.**, Tampa, Fla. $2,237,930. Microwave relay communications system components. Tampa. Electronics Command, Philadelphia, Pa.

—**Peter Reiss Construction Co.**, Forest Hills, N.Y. $3,944,500. Construction and conversion of existing gymnasium at West Point. Engineer Dist., New York, N.Y.

15—**Kirst Construction Co.**, Altadena, Calif. $5,311,004. Work on the San Gabriel River Channel-Whittier Narrows Dam Project. Downey, Pico, Rivera and Sante Fe, Calif. Engineer Dist., Los Angeles, Calif.

—**Lear Siegler, Inc.**, Anaheim, Calif. $2,500,000. Classified electronic equipment. Anaheim. Electronics Command, Fort Monmouth, N.J.

—**TEMCO, Inc.**, Nashville, Tenn. $2,074,500. Metal parts for 106mm projectiles. Nashville. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Atlas Chemical Industries**, Wilmington, Del. $4,173,675. TNT. Chattanooga, Tenn. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Pacific Car & Foundry Co.**, Renton, Wash. $1,500,000. Overhaul of M107 vehicles and conversion of M110 vehicles to M107 configuration. Renton. Northwest Procurement Agency, Oakland, Calif.

—**A. T. Gravelie General Contractor**, Indianapolis, Ind. $1,381,286. Work on the Missisinewa Reservoir Project. Peru, Ind. Engineer Dist., Louisville, Ky.

16—**Hansel Phelps Construction Co.**, Greely, Colo. $7,112,000. Construction of a multi-story cadet quarters building at the Air Force Academy, Colorado Springs, Colo. Engineer Dist., Omaha, Neb.

—**Caterpillar Tractor Co.**, East Peoria, Ill. $1,028,409. 23 diesel-engine tractors. East Peoria. Mobility Equipment Command, St. Louis, Mo.

17—**Consolidated Diesel Electric Co.**, Old Greenwich, Conn. $1,251,100. 10-ton tractor trucks. Scotia, N.Y. Tank Automotive Command, Warren, Mich.

—**Fabricators, Inc.**, Salem, Ore. $1,659,170. 1,385 floodlight sets. Salem. Mobility Equipment Command, St. Louis, Mo.

—**Union Carbide Corp.**, New York, N.Y. $1,462,504. Dry batteries. Greenville and Charlotte, N.C. Electronics Command, Philadelphia, Pa.

—**Cutler-Hammer, Inc.**, Deer Park, N.Y. $2,977,779. Radar sets, battery chargers and test facility kits for the light weight miniaturized combat surveillance radar set. Deer Park. Electronic Command, Philadelphia, Pa.

—**Holl-Steffen Construction Co.**, Affton, Mo.

$1,342,196. Construction of two buildings for airmen dormitories. Scott AFB, Ill. Engineer Dist., Chicago, Ill.

—**Harbert Construction Corp.**, Birmingham, Ala. $9,698,607. Work on Lock and Dam No. 18 on the Arkansas River. Near Inola, Okla. Engineer Dist., Tulsa, Okla.

18—**E. I. Dupont De Nemours & Co.**, Wilmington, Del. $3,157,000. Design and development of an ammunition facility at Parsons, Kan. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Raytheon Co.**, Lexington, Mass. $1,723,044. Repair parts for Hawk missiles. Andover, Mass. Aviation Materiel Command, St. Louis, Mo.

—**General Precision**, Wayne, N.J. $1,651,425. Design and development of a prototype liquid propellant rocket motor with direction central for 105mm howitzer. Wayne. Picatinny Arsenal, Dover, N.J.

—**Barnes Mfg. Co.**, Mansfield, Ohio. $1,014,117. Gasoline pump assemblies. Mansfield. Mobility Equipment Command, St. Louis, Mo.

—**Nolan Bros., Inc.**, Minneapolis, Minn. $5,173,940. Work on the Cochita Dam Project, Sandoval County, N.M. Engineer Dist., Albuquerque, N.M.

—**General Dynamics**, Rochester, N.Y. $2,387,00. 12 radio sets and 270 receiver-transmitters. Rochester. Electronics Command, Philadelphia, Pa.

19—**Bell Aerospace Corp.**, Fort Worth, Tex. $1,253,322. Work on the armament subsystems on AH-1G helicopters. Fort Worth. Aviation Materiel Command, St. Louis, Mo.

—**I.B.M.**, Gathersburg, Md. $5,036,261. Five automatic data processing subsystems. Gathersburg. Electronics Command, Fort Monmouth, N.J.

—**R.C.A.**, Camden, N.J. $5,000,000. Classified electronic equipment. Camden. Electronic Command, Fort Monmouth, N.J.

—**R.C.A.**, Camden, N.J. $2,265,000. Tactical satellite communication ground and airborne terminals. Camden. Electronics Command, Fort Monmouth, N.J.

—**Electro-Optical Systems**, Pasadena, Calif. $1,554,000. Work on a night vision program. Pasadena. Electronics Command, Fort Monmouth, N.J.

—**General Dynamics**, Rochester, N.Y. $11,347,480. Communications equipment. Rochester, N.Y. and Orlando, Fla. Electronics Command, Philadelphia, Pa.

—**Harvey Aluminum**, Torrance, Calif. $1,238,733. Metal parts for 40mm projectiles. Torrance. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Bulova Watch Co.**, Providence, R.I. $3,412,866. Fuzes for ammunition. Providence. Procurement & Supply Agency, Joliet, Ill.

—**Albion Malleable Iron Co.**, Albion, Mich. $1,246,800. Metal parts for 2.75-inch rockets. Albion. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Bucryus Erie Co.**, Evansville, Ind. $4,876,349. 12½-ton crane shovels. Erie, Pa. Mobility Equipment Command, St. Louis, Mo.

—**Harnischfeger Corp.**, Milwaukee, Wis. $6,787,338. Truck-mounted cranes and shovels. Escanaba, Mich. Mobility Equipment Command, St. Louis, Mo.

—**Gregg, Gibson & Gregg Contractors**, Leesburg, Fla. $5,071,692. Work on the Central and Southern Florida Flood Control Project. Highlands, Polk and Okeechobee Counties, Fla. Engineer Dist., Jacksonville, Fla.

—**Midvale-Heppenstall Co.**, Philadelphia, Pa. $3,452,200. Tube forging for 175mm guns. Philadelphia, Watervliet Arsenal, Watervliet, N.Y.

—**Raytheon Co.**, Bedford, Mass. $2,100,000. Initiation of advanced development of the SAM-D missile program. Bedford. Army Missile Command, Huntsville, Ala.

22—**Wells Marine, Inc.**, El Segundo, Calif. $1,606,893. 20mm projectiles. El Segundo. Frankford Arsenal, Philadelphia, Pa.

—**Litton Systems**, Van Nuys, Calif. $2,459,175. Data converter coordinated air defense systems. Van Nuys. Army Missile Command, Huntsville, Ala.

—**Stokes Construction Co.**, San Marcos, Tex. $2,709,107. Construction of an administration and operations building at Bergstrom AFB, Tex. Engineer Dist., Fort Worth, Tex.

23—**Construction, Ltd.**, Bordentown, N.J. $1,493,000. Construction of two mess hall buildings at Fort Belvoir, Va. Engineer Dist., Norfolk, Va.

—**H. B. Zachry Co.**, San Antonio, Tex. $3,831,000. Construction of heliport facilities at Fort Wolters, Tex. Engineer Dist., Fort Worth, Tex.

—**Stewart Warner Corp.**, Indianapolis, Ind. $1,274,209. Reciprocating compressors. Indianapolis. Mobility Equipment Command, St. Louis, Mo.

—**Brunswick Corp.**, Sugar Grove, Va. $1,898,657. 35mm cartridge launchers. Marion and Sugar Grove, Va. Edgewood Arsenal, Md.

—**Park Construction Co.**, Minneápolis, Minn. $1,837,171. Work on the Root River-Rush Creek Project. Rushford, Minn. Engineer Dist., St. Paul, Minn.

—**Civil Works Constructors**, Farmington, Mich. $2,246,385. Work on the Central and Southern Florida Flood Control Project. Okeechobee, Fla. Engineer Dist., Jacksonville, Fla.

—**Eidal International Division of S. W. Factory, Inc.**, Albuquerque, N.M. $2,731,831. Trailer mounted laundry units. Albuquerque. Mobility Equipment Command, St. Louis, Mo.

—**Muncie Gear Work**, Muncie, Ind. $3,329,299. 2.75-inch rocket fin and nozzle assemblies. Muncie. Picatinny Arsenal, Dover, N.J.

24—**American Mfg. Co. of Tex.**, Fort Worth, Tex. $1,190,000. Metal parts for 2.75 inch rockets. Fort Worth. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Maremont Corp.**, Saco, Maine. $1,461,747. 7.62mm machine guns with spare barrel and bi-pod assemblies. Saco. Army Weapons Command, Rock Island, Ill.

25—**Honeywell, Inc.**, Hopkins, Minn. $6,855,484. Fuzes for bombs. Hopkins. Procurement Detachment, Chicago, Ill.

26—**Thiokol Chemical Corp.**, Bristol, Pa. $6,380,011. Various types and amounts of ordnance. Marshall, Tex. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**U.S. Rubber Co.**, New York, N.Y. $21,890,855. Manufacturing explosives and loading of ammunition items. Joliet, Ill. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**General Time Corp.**, La Salle, Ill. $1,927,893. Fuzes for 105mm projectiles. La Salle. Frankford Arsenal, Philadelphia, Pa.

—**Continental Motors**, Muskegon, Mich. $5,607,339. Engine assemblies for the M48 tank. Muskegon. Tank Automotive Command, Warren, Mich.

—**Continental Motors**, Muskegon, Mich. $8,483,358. 1½, 3 and 6 horsepower engines. Milwaukee, Wis. Mobility Equipment Command, St. Louis, Mo.

—**Colt's, Inc.**, Hartford, Conn. $2,943,592. M16 rifles. Hartford. Army Weapons Command, Rock Island, Ill.

—**Bell Helicopter Co.**, Fort Worth, Tex. $3,417,954. Rotary wing blades for the UH-1 helicopter. Fort Worth. Aviation Materiel Command, St. Louis, Mo.

—**Oberg Construction Corp.**, Northridge, Calif. $4,530,770. Work on the San Jose Creek Channel. Near Pomona, Calif. Engineer Dist., Los Angeles, Calif.

—**Caterpillar Tractor Co.**, Peoria, Ill. $1,208,960. 18 heavy tractors. Peoria. Mobility Equipment Command, St. Louis, Mo.

—**G. W. Galloway Co.**, Baldwin Park, Calif. $1,608,418. Containers for Shillelagh missiles. Ontario. Calif. Army Missile Command, Huntsville, Ala.

—**A. O. Smith Corp.**, Chicago, Ill. $15,221,731. Metal parts for 750-lb. bombs. Waco, Tex. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Kanarr Corp.**, Kingston, Pa. $3,252,506. 40mm grenade launchers. Kingston. Army Weapons Command, Rock Island, Ill.

29—**List & Clark Construction Co.**, Overland Park, Kan. $1,865,796. Work on the Stockton Reservoir Project. Dale and Cedar Counties, Mo. Engineer Dist., Kansas City, Mo.

—**Day & Zimmerman**, Philadelphia, Pa. $20,616,130. Miscellaneous components for medium caliber ammunition; loading, assembling and packing of medium caliber ammunition; and operating and maintenance activities at the Long Star Ammunition Plant, Texarkana, Tex. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Patton-Tully Transportation**, Memphis, Tenn. $1,265,802. Construction work on the Mississippi River and tributaries channel improvement project. Near Caruthersville, Mo. Engineer Dist., Memphis, Tenn.

—**Cummins Engine Co.**, Columbus, Ind. $3,277,074. Diesel engine assemblies for 10-ton trucks. Columbus. Tank Automotive Command, Warren, Mich.

—**Bell Helicopter**, Fort Worth, Tex. $1,000,000. Crash damage kits for UH-1 helicopters. $1,493,557. Quill assemblies for UH-1 helicopters. Fort Worth. Aviation Materiel Command, St. Louis, Mo.

31—**R.C.A.**, Camden, N.J. $1,234,684. Portable man-pack radio sets. Camden. Electronics Command, Philadelphia, Pa.

—**General Electric**, Syracuse, N.Y. $4,967,740. Vehicle-mounted radar sets. Pittsfield, Mass. and Syracuse. Electronics Command, Philadelphia, Pa.

—**Strong Electric Corp.**, Toledo, Ohio. $1,215,886. 70 search lights. Toledo. Electronics Command, Forth Monmouth, N.J.

—**VARO, Inc.**, Garland, Tex. $3,000,000. Image intensifier assemblies. Garland. Electronics Command, Fort Monmouth, N.J.

—**Sperry Rand Corp.**, Phoenix, Ariz. $1,066,234. Indicators for radio magnetic compasses. Salt Lake City, Utah and Phoenix. Southwest Procurement Detachment, Pasadena, Calif.

—**Norris Industries**, Los Angeles, Calif. $1,987,370. 90mm cartridge cases. Vernon, Calif. Southwest Procurement Detachment, Pasadena, Calif.

—**AVCO Corp.**, Stratford, Conn. $17,016,583. T53-L-13 engines for UH-1 helicopters. Stratford. Aviation Materiel Command, St. Louis, Mo.

—**Collins Radio Co.**, Addison, Tex. $1,263,474. Avionic kits for UH-1 helicopters. Addison. Aviation Materiel Command, St. Louis, Mo.

—**Grumman Aircraft Engineering Corp.**, Bethpage, N.Y. $3,719,000. Modernization of OV-1B aircraft. $2,263,500. Modernization of OV-1C aircraft. Stuart, Fla. Aviation Materiel Command, St. Louis, Mo.

—**Mack Trucks**, Allentown, Pa. $5,434,800. Axle assemblies for 10-ton trucks. Allentown. Tank Automotive Command, Warren, Mich.

—**White Motor Corp.**, Chicago, Ill. $1,217,115. Engineering services in support of M39 trucks. Chicago. Tank Automotive Command, Warren, Mich.

—**General Motors**, Detroit, Mich. $1,852,608. Trucks. Baltimore, Md. Tank Automotive Command, Warren, Mich.

—**Bowen-McLaughlin-York, Inc.**, York, Pa. $1,721,350. Elevating drive assemblies and traversing drive assemblies for M107 and M110 vehicles. York. Tank Automotive Command, Warren, Mich.

—**Stevens Mfg. Co.**, Ebensburg, Pa. $1,140,493. 2½-ton, 2-wheel trailer chassis. Ebensburg. Tank Automotive Command, Warren. Mich.

—**Eaton, Yale & Town Mfg. Co.**, Batavia, N.Y. $3,636,780. Diesel engine-driven scoop loaders. Batavia. Mobility Equipment Command, St. Louis, Mo.

—**Emerson Electric**, St. Louis, Mo. $15,212,500. Armament subsystems—combination machine gun and grenade launcher—for Cobra helicopter. St. Louis. Weapons Command, Rock Island, Ill.

—**Ford Motors**, Dearborn, Mich. $2,261,176. Tractor trucks. Louisville, Ky. Tank Automotive Command, Warren, Mich.

—**Chrysler Motors**, Detroit, Mich. $11,700,000. ¾-ton trucks. Warren, Mich. Tank Automotive Command, Warren, Mich.

—**Continental Motors**, Mobile, Ala. $5,957,700. Engine assemblies, with containers, for rebuilding and refitting of combat vehicles. Mobile. Tank Automotive Command, Warren, Mich.

—**Hercules Engine Corp.**, Canton, Ohio. $6,581,618. Engine assemblies for 2½-ton and five-ton trucks. Canton. Tank Automotive Command, Warren, Mich.

—**Mason & Hanger—Silas Mason Co.**, Lexington, Ky. $6,907,330. Loading, assembling and packing of 750-lb. bombs. Grand Island, Neb. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Holson Defense Corp.**, Kingsport, Tenn. $5,750,296. Miscellaneous propellant and explosives. Kingsport. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Consolidated Box Co.**, Tampa, Fla. $1,544,187. Fiber containers for ammunition. Tampa. Ammunition Procurement & Supply Agency, Joliet, Ill.

—**General Time Corp.**, LaSalle, Ill. $4,951,524. Time fuzes for 4.2-inch mortar projectiles and 105mm artillery illuminating shells. LaSalle. Ammunition Procedurement & Supply Agency, Joliet, Ill.

—**Z D Products**, El Segundo, Calif. $2,551,648. Ordnance components. El Segundo.

Ammunition Procurement & Supply Agency, Joliet, Ill.

—**Corning Glass Works,** Corning, N.Y. $1,818,887. Ceramic containers for aircraft munition dispensing systems. Martinsburg, W. Va. Ammunition Procurement Bridgeport. Ammunition Procurement and Supply Agency, Joliet, Ill.

—**Dynamics Corp. of America,** Bridgeport, Conn. $2,038,499. 60-cycle generator sets. Bridgeport. Ammunition Procurement & Supply Agency, Joliet, Ill.

NAVY

1—**KDI Corp.,** Norwood, Ohio. $11,142,262. Mark 349 mechanical time fuses. Norwood. Ships Parts Control Center, Mechanicsburg, Pa.

—**Litton Systems,** Woodland Hills, Calif. $7,126,356. Equipment related to inertial navigational systems and computer systems of aircraft. Woodland Hills. Aviation Supply Office, Philadelphia, Pa.

—**Ling-Temco-Vought,** Greenville, Tex. $2,984,212. Services and materials for modification of ES-121K aircraft. Greenville. Naval Air Systems Command.

—**All American Engineering Co.,** Wilmington, Del. $2,075,784. Arresting gear systems. Wilmington. Naval Air Engineering Center, Philadelphia, Pa.

—**Atlantic Research Corp.,** Alexandria, Va. $1,490,160. Rocket motors for the Standard missile. Gainesville, Va. Naval Ordnance Systems Command.

—**Stanwick Corp.,** Arlington, Va. $1,117,424. Engineering, studies, planning evaluation and related work in connection with overhaul of attack aircraft carrier USS Saratoga (CVA-60). Arlington. Naval Shipyard, Philadelphia, Pa.

—**United Telecontrol Electronics,** Asbury Park, N.J. $1,342,582. Airborne radar beacons. Asbury Park. Naval Air Systems Command.

—**Lockheed Aircraft,** Burbank, Calif. $1,826,407. Increased funding for modification of SP-2H aircraft. Burbank. Naval Air Systems Command.

—**United Aircraft,** East Hartford, Conn. $1,015,688. Stand assemblies used to support engines on F-111A aircraft. East Hartford. Navy Aviation Supply Office, Philadelphia, Pa.

2—**Hughes Aircraft,** Culver City, Calif. $72,212,800. Airborne missile control systems for Phoenix missiles. Culver City. Naval Air Systems Command.

—**General Signal Corp.,** Woodbury, N.Y. $4,952,631. Decoders. Woodbury. Naval Ship Systems Command.

—**Mine Safety Appliances Co.,** Pittsburgh, Pa. $2,219,496. Oxygen-breathing apparatus and canisters used by firefighting teams aboard ship. Evans City, Pa. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**Magnavox Co.,** Fort Wayne, Ind. $2,000,000. Continued basic engineering and development of an air droppable ASW sonobuoy system. Fort Wayne. Naval Air Systems Command.

—**LTV, Inc.,** Dallas, Tex. $1,588,600. Acquisition and installation of production equipment at Naval Weapons Industrial Reserve Plant, Dallas, Tex. Naval Air Systems Command.

—**United Aircraft,** Norwalk, Conn. $1,122,630. Indicators, transmitters, controls, and radar sets for A-6A aircraft. Norwalk. Navy Aviation Supply Office, Philadelphia, Pa.

—**Atlas Fabricators,** Long Beach, Calif. $1,076,953. Mark 76 practice bombs. La Mirada, Calif., and Murfreesboro, Tenn. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**Douglas Aircraft,** Tulsa, Okla. $1,070,000. Modification of three A-3B aircraft. Tulsa. Navy Purchasing Office, Los Angeles, Calif.

3—**Aerojet-General Corp.,** Azusa, Calif. $41,256,598. Production of MK 46 torpedoes. Azusa. Naval Ordnance Systems Command.

—**United Aircraft,** East Hartford, Conn. $12,433,752. J-52-P-8A engines. East Hartford. Naval Air Systems Command.

—**General Dynamics,** Pomona, Calif. $9,550,000. Standard Arm missiles. Pomona. Naval Air Systems Command.

—**Teledyne Systems,** Hawthorne, Calif. $7,406,350. Self-contained navigation systems. Naval Air Systems Command.

—**North American Aviation,** Columbus, Ohio. $4,840,000. T-2B aircraft and related equipment. Columbus. Naval Air Systems Command.

—**Sperry Gyroscope Co.,** Great Neck, N.Y. $3,874,586. Fabrication and test of prototype models of the Phase II Integrated Light Attack Avionics System. Great Neck. Naval Air Systems Command.

—**Maxson Electronics,** Old Forge, Pa. $3,036,960. Bullpup missiles. Old Forge. Naval Air Systems Command.

—**Raytheon Co.,** Sudbudy, Mass. $2,100,786. Electronic guidance equipment and related support for the Poseidon weapon system. Sudbury. Special Projects Office.

4—**Litton Systems, Inc.,** Woodland Hills, Calif. $4,866,113. Inertial navigation systems and special support equipment. Woodland Hills. Naval Air Systems Command.

—**North American Aviation,** Columbus, Ohio. $3,641,766. Airborne pod countermeasure sets. Columbus. Naval Air Systems Command.

—**Stewart & Stevenson Services,** Houston, Tex. $1,795,300. Variable-frequency acoustic diesel-generator sets, component parts, and engineering services. Houston. Naval Ship Systems Command.

—**Curtiss-Wright Corp.,** Wood-Ridge, N.J. $1,464,023. Product support engineering services for J-65 engines. Wood-Ridge. Naval Air Systems Command.

5—**Miami Beach, Yacht Corp.,** Miami Beach, Fla. $1,289,304. Motor whaleboats. Miami Beach. Naval Ship Systems Command.

—**Hartman-Huyck Systems,** Huntington Station, N.Y. $1,000,000. Components for the navigation system used in P-3A and P-3B aircraft. Huntington Station. Navy Aviation Supply Office, Philadelphia, Pa.

—**Philco-Ford Corp.,** Palo Alto, Calif. $1,185,467. Maintenance and spare parts shelters used in support of Mobile (Helicopter) Landing Control Centers. Palo Alto. Naval Supply Center, Oakland, Calif.

8—**Security Construction Co.,** Richmond, Va. $1,942,000. Addition to a fuel accessories overhaul building at Norfolk, Va., Naval Air Station. Atlantic Div., Naval Facilities Engineering Command, Norfolk, Va.

—**G. L. Cory,** San Diego, Calif. $1,087,570. Construction of an aircraft maintenance hanger at the Naval Auxiliary Air Station, Imperial Beach, Calif. Naval Facilities Engineering Command.

9—**Honeywell, Inc.,** Hopkins, Minn. $62,970,157. Production of MK 46 torpedoes. Hopkins. Naval Ordnance Systems Command.

—**Johns Hopkins University, Applied Physics Laboatory,** Silving Spring, Md. $2,084,000. Work on the Talos weapon system. Silver Spring. Naval Ordnance Systems Command.

—**Fairchild Camera & Instrument Corp.,** Paramus, N.J. $1,779,495. Radar sets, spare parts and engineering services. Paramus. Naval Ship Systems Command.

—**Daniel Construction Co. of Virginia,** Richmond, Va. $1,670,000. Construction of an air launch missile facility at the Naval Weapons Station, Yorktown, Va. Naval Facilities Engineering Command.

—**Barry L. Miller Engineering,** Hawthorne, Calif. $1,401,272. Fuzes for Walleye missiles. Hawthorne. Naval Air Systems Command.

10—**General Precision, Inc.,** Binghampton, N.Y. $16,698,857. Seven F-4E weapon system training sets including support items. Palto Alto, Calif. and Binghampton. Naval Training Device Center, Orlando, Fla.

—**University of Calif.,** Santa Barbara, Calif. $2,037,986. Oceanographic research. San Diego, Calif. Office of Naval Research.

—**E. C. Young & J. W. Vickrey,** El Cajon, Calif. $1,020,000. Construction of aircraft parking aprons at the Marine Corps Air Station, Santa Ana. Calif. Southwest Div., Naval Facilities Engineering Command, San Diego, Calif.

12—**John C. Grimberg Co.,** Rockville, Md. $3,145,000. Construction of a central heating plant at the Naval Academy, Annapolis, Md. Chesapeake Div., Naval Facilities Engineering Command, Washington, D.C.

—**King-Hunter, Inc.,** Greensboro, N.C. $1,296,304. Construction of a combat direction annex at the Fleet Anti-Air Warfare Training Center, Dam Neck, Va. Atlantic Div., Naval Facilities Engineering Command, Norfolk, Va.

—**John C. Grimberg Co.,** Rockville, Md. $1,007,000. Construction of a nitroglycerine plant at the Naval Ordnance Station, Indian Head, Md. Chesapeake Div., Naval Facilities Engineering Command, Washington, D.C.

—**FMC Corp.,** Minneapolis, Minn. $1,110,000. Component parts for 5"/54 Mark 42, Mod 7 gun mounts. Minneapolis. Naval Ordnance Station, Louisville, Ky.

—**Dillingham Corp.,** Honolulu, Hawaii $1,679,000. Construction of shoreline protection of Johnson Island, Hawaii. Pacific Div., Naval Facilities Engineering Command, Pearl Harbor, Hawaii.

—**Granger Associates,** Palo Alto, Calif. $1,036,549. Inverted cone, high frequency antennae. Palo Alto. Navy Purchasing Office, Washington, D.C.

—**Irvin Para-Space Center,** Glendale, Calif. $1,111,031. Mobile electric power plants used to supply power for aircraft in flight lines, ramps and in hangers. Glendale. Navy Purchasing Office, Washington, D.C.

—**Sylvania Electronics Systems,** Needham Heights, Mass. $1,933,519. Tactical Electronic countermeasures trainer with related services and materials. Needham Heights. Naval Training Device Center, Orlando, Fla.

15—**Wells Industries,** North Hollywood, Calif. $3,433,330. Starting systems for jet engine aircraft. North Hollywood. Naval Air Systems Command.

—**United Aircraft,** Stratford, Conn. $2,604,400. SH-3D helicopters. Stratford. Naval Air Systems Command.

—**U.S. Steel,** Pittsburgh, Pa. $2,598,179. 250-lb. bomb bodies. McKeesport, Pa. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**Sperry Piedmont Co.,** Charlottesville, Va. $2,100,000. Field improvement kits for radar equipment aboard naval surface ships. Charlottesville. Naval Ship Systems Command.

—**Sanders Associates,** Nashua, N.H. $1,690,000. Classified electronics equipment. Nashua. Naval Air Systems Command.

—**San Diego Marine Construction Co.,** San Diego, Calif. $1,222,680. 15 open lighters. San Diego. Naval Ship Systems Command.

16—**Dyson & Co.,** Pensacola, Fla. $3,403,591. Construction of 250 family housing units at the Naval Air Station, Pensacola, Fla. Southeast Div., Naval Facilities Engineering Command, Charleston, S.C.

—**General Precision, Inc.,** Glendale, Calif. $1,211,311. Production of MK 48 torpedo fire control systems. Glendale. Naval Ordnance Systems Command.

—**Todd Shipyards Corp.,** Brooklyn, N.Y. $1,159,600. Overhaul of the destroyer tender USS Grand Canyon (AD-38). Brooklyn. Supervisor of Shipbuilding, First Naval Dist., Boston, Mass.

17—**Foster Construction Co.,** Anaheim, Calif. $1,228,033. Construction of a testing-assembling-checkout facility for air-launched missiles. Fallbrook, Calif. Southwest Div., Naval Facilities Engineering Command, San Diego, Calif.

—**Hercules, Inc.,** Wilmington, Del. $1,224,000. To conduct solid propellant rocketry supporting research. Cumberland, Md. Naval Ordnance Systems Command.

18—**Collins Radio Co.,** Cedar Rapids, Iowa. $2,606,315. Airborne UHF radio sets. Cedar Rapids. Naval Air Systems Command.

—**Canadian Commercial Corp.,** Ottawa, Canada. $3,299,442. Structural components for the attack aircraft carrier USS Midway. Montreal, Canada. Navy Supply Center, Oakland, Calif.

19—**McDonnell Douglas Co., St. Louis, Mo.** $237,335,000. F-4E and RF-4C aircraft. St. Louis. Naval Air Systems Command.

—**Ries Construction Co.,** San Diego, Calif. $1,713,444. Construction of BOQ with mess facilities at Camp Pendleton, Calif. Southwest Div., Naval Facilities Engineering Command, San Diego, Calif.

—**Johns Hopkins University, Applied Science Laboratory,** Silver Spring, Md. $1,100,000. Research work on the Talos weapon system. Silver Spring. Naval Ordnance Systems Command.

22—**General Dynamics,** Pomona, Calif. $7,080,000. Production of the Standard missile. Naval Ordnance Systems Command.

—**Harvey Construction Co.,** Manchester, N.H. $1,283,000. Construction of a sewage disposal system at the Portsmouth, N.H., Naval Shipyard. Northeast Div., Naval Facilities Engineering Command, Boston, Mass.

23—**Westinghouse Electric Corp.,** Baltimore, Md. $27,600,000. Airborne radar sets. Baltimore. Naval Air Systems Command.

—**General Precision,** Glendale, Calif. $6,594,646. Major component for MK 113 torpedo fire control systems. Glendale. Naval Ordnance Systems Command.

—**Sperry-Rand Corp.**, Long Island City, N.Y. $1,091,870. Technical services in support of Tartar, Terrier and Talos missile systems. Long Island City. Navy Purchasing Office, Los Angeles, Calif.

24—**RCA**, Camden, N.J. $3,750,000. Radio sets. Camden. Naval Ship Systems Command.

—**Zenith Radio Corp.**, Chicago, Ill. $1,788,995. Classified radar equipment. Chicago. Naval Ship Systems Command.

—**Electromagnetic Technology Corp.**, Colmar, Pa. $1,587,190. Transistorized electronic counters and related data. Colmar. Naval Ship Systems Command.

—**Martin Marietta**, Orlando, Fla. $2,000,000. Missile launchers for various aircraft. Orlando. Navy Aviation Supply Office, Philadelphia, Pa.

25—**LTV Aerospace Corp.**, Dallas, Tex. $34,299,386. A-7B aircraft. Dallas. Naval Air Systems Command.

—**Lockheed Aircraft**, Marietta, Ga. $8,718,800. EC-130 aircraft. Marietta. Naval Air Systems Command.

—**Collins Radio Co.**, Cedar Rapids, Iowa. $4,424,212. Airborne communication, navigation and identification systems and components. Cedar Rapids. Naval Air Systems Command.

—**Bunker-Ramo Corp.**, Canoga Park, Calif. $2,432,309. Electronic counter-measure equipment. Silver Spring, Md. and Canoga Park. Naval Air Systems Command.

—**Lockheed Missiles & Space Co.**, Sunnyvale, Calif. $2,000,000. Modification of Polaris missile checkout equipment. $3,317,872. Design and development of training equipment for the Poseidon weapon system. Sunnyvale. Special Projects Office.

26—**Bermite Powder Co.**, Saugus, Calif. $12,862,680. Production of MARK 24 parachute flares. Saugus. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**Texas Instruments**, Dallas, Tex. $6,192,021. Wing and fin sets and guidance and control sections for Shrike missiles. Dallas. Naval Air Systems Command.

—**Raytheon Co.**, Bedford, Mass. $3,000,000. Design and development on Sparrow III missiles. Bedford. Naval Air Systems Command.

—**General Instrument Corp.**, Chicopee, Mass. $2,692,242. Fuzes for 250 and 500-lb. bombs. Chicopee. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**Sperry Rand Corp.**, Bristol, Tenn. $2,555,621. Wing and fin sets, and guidance and control sections for Shrike missiles. Bristol. Naval Air Systems Command.

—**Kaman Aircraft**, Colorado Springs, Colo. $1,506,400. Classified services in connection with the Fleet Ballistic Missile Weapon System. Colorado Springs. Special Projects Office.

—**Stanford Research Institute**, Menlo Park, Calif. $1,481,101. Naval operations research. Menlo Park. Office of Naval Research.

—**Philco-Ford Corp.**, Palo Alto, Calif. $1,128,960. Landing control central shelters used for control of helicopter traffic. Oakland, Calif. Naval Supply Center, Oakland, Calif.

29—**Mathiasen Tanker Industries**, Philadelphia, Pa. $92,000,00. Services. Military Sea Transportation Service.

—**Marine Transport Lines**, New York, N.Y. $101,000,000. Services. Military Sea Transportation Service.

—**American Mfg. Co. of Tex.**, Fort Worth, Tex. $7,330,400. Eight-inch projectiles. Fort Worth. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**General Electric**, Cincinnati, Ohio. $3,981,348. $3,708,929. J79-GE-10 engines for F-4J aircraft. Cincinnati. Navy Aviation Supply Office, Philadelphia, Pa.

—**Hughes Aircraft**, Culver City, Calif. $2,031,000. Phoenix missile system funding. Naval Air Systems Command.

—**Norris Industries**, Los Angeles, Calif. $1,996,400. Cartridge cases for eight-inch projectiles. Los Angeles. Navy Ships Parts Control Center, Mechanicsburg, Pa.

—**I.T.&T.**, Nutley, N.J. $1,000,000. Airborne receiver transmitters. Nutley. Naval Air Systems Command.

31—**General Motors**, Indianapolis, Ind. $3,321,200. Kits for T56-A16 engines. Indianapolis. Aviation Supply Office, Philadelphia, Pa.

—**Whiting-Turner Construction Co.**, Memphis, Tenn. $1,747,000. Construction of a 4,000-man building at Memphis Naval Air Station. Southeast Div., Naval Facilities Engineering Command, Charleston, S.C.

—**Frank J. Rooney, Inc.**, Miami, Fla. $1,297,669. Construction of a training building at the Naval Training Center, Orlando, Fla. Southeast Div., Naval Facilities Engineering Command, Charleston, S.C.

—**Teledyne Inc.**, Berwick, La. $3,242,000. Aluminum-constructed fast patrol boats. Berwick. Naval Ship Systems Command.

—**Sperry Rand Corp.**, St. Paul, Minn. $1,590,280. Production of fire control digital computers and related equipment for Talos missiles. St. Paul. Naval Ordnance Systems Command.

—**Western Electric**, New York, N.Y. $1,272,000. Oceanographic research, Whippany, N.J. Navy Purchasing Office.

—**AiResearch Mfg. Co.**, Phoenix, Ariz. $1,082,083. Spare parts for T76-G-10/12 engines for OV-10A aircraft. Phoenix. Aviation Supply Office, Philadelphia, Pa.

—**Bethlehem Steel Corp.**, Baltimore, Md. $1,224,000. Regular overhaul of the oiler USS Chukawan (AO-100). Baltimore. Supervisor of Shipbuilding, Fifth Naval Dist., Norfolk, Va.

MARINE CORPS

2—**FMC Corp.**, San Jose, Calif. $2,819,547. Roadwheel caps and assemblies for amphibious vehicles. San Jose. Headquarters, Marine Corps.

15—**Magline, Inc.**, Pinconning, Mich. $1,248,332. Shelter and handling systems used to assemble aircraft ordnance. Pinconning. Headquarters, Marine Corps.

17—**G. C. Dewey Corp.**, New York, N.Y. $2,700,000. Communications and radar equipment. New York. Headquarters, Marine Corps.

22—**Canadian Commercial Corp.**, Ottawa, Canada. $5,629,895. Telegraph-telephone terminal sets. Campbellton, New Brunswick. Headquarters, Marine Corps.

AIR FORCE

2—**TRW, Inc.**, Rendondo Beach, Calif. $1,283,000. Work on space-ground communications. Redondo Beach. Space Systems Div., (AFSC), Los Angeles, Calif.

—**Avion Electronics**, Paramus, N.J. $1,123,609. Production of airborne radar beacons. Paramus. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla.

3—**Irving Air Chute Co.**, Lexington, Ky. $1,442,343. Production of aircraft cargo tie-down nets. Lexington. Warner Robins Air Materiel Area, (AFLC), Robins AFB, Ga.

—**Eastern Rotocraft Corp.**, Doylestown, Pa. $1,463,904. Production of aircraft cargo tie-down nets. Doylestown. Warner Robins Air Materiel Area, (AFLC), Robins AFB, Ga.

—**Honeywell, Inc.**, Hopkins, Minn. $13,485,000. Production of bomb components. Hopkins. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Collins Radio Co.**, Cedar Rapids, Iowa. $3,365,000. Ultra High Frequency Terminals for Tactical Satellite Communications Operational Feasibility Test Program. Cedar Rapids. Electronic Systems Command (AFSC), L. G. Hanscom Field, Mass.

4—**General Electric**, Cincinnati, Ohio. $32,111,000. Production of J-79-15 and J-79-17 aircraft engines. Evendale, Ohio. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Bendix Corp.**, Teterboro, N.J. $2,782,863. Production of electronic data processing equipment. Teterboro. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Litton Systems, Inc.**, Woodland Hills, Calif. $4,173,000. Avionics subsystems for F-4 aircraft. Woodland Hills. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

5—**Boeing Co.**, Seattle, Wash. $3,438,701. Design, development and testing of missile trajectory prediction systems and related equipment. Seattle. Ballistic Systems Div., (AFSC), Norton AFB, Calif.

—**General Motors**, Indianapolis, Ind. $1,200,000. Aircraft engine development. Indianapolis. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**AVCO Corp.**, Richmond, Ind. $3,000,000. Production of fuzes and related equipment for aircraft ordnance. Richmond. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

8—**Varo, Inc.**, Garland, Tex. $3,441,785. Production of aircraft ordnance ejector racks. Mexia, Tex. Warner Robins Air Materiel Area, (AFLC), Robins AFB, Ga.

—**General American Transportation Corp.**, Niles, Ill. $1,162,020. Production of bomb components. Niles. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Universal Comptronics Corp.**, Thornwood, N.Y. $1,062,720. Production of communications equipment. Thornwood. Warner-Robins Air Materiel Area, (AFLC), Robins AFB, Ga.

9—**Radiation Inc.**, Melbourne, Fla. $2,873,240. Construction of a large, space-oriented antenna. Melbourne. Space Systems Div., (AFSC), Los Angeles, Calif.

10—**Adams Russell Co.**, Waltham, Mass. $1,326,741. Production of antenna systems for B-52 aircraft. Waltham. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla.

—**Batesville Mfg. Co.**, Batesville, Ark. $1,081,968. Bomb components. Batesville. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

11—**AVCO Corp.**, Richmond, Ind. $9,058,000. Production of aircraft ordnance fuzes, containers and related equipment. Richmond. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Lockheed Missiles & Space Co.**, Sunnyvale, Calif. $5,306,569. Launch services for the Agena rocket from April 1966 to September 1967. Vandenberg AFB, Calif. Space Systems Div., (AFSC), Los Angeles, Calif.

—**General Electric**, West Lynn, Mass. $5,105,636. Production of T-58 engines for helicopters. West Lynn. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

12—**Douglas Aircraft**, Santa Monica, Calif. $1,300,000. Production of space boosters. Santa Monica. Space Systems Div., (AFSC), Los Angeles, Calif.

17—**Bendix Corp.**, North Hollywood, Calif. $1,051,884. Production of airborne radar equipment. North Hollywood. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Martin-Marietta**, Orlando, Fla. $3,504,550. Test and development of aircraft targeting systems. Orlando. Air Proving Ground Center, Eglin AFB, Fla.

18—**Lockheed Aircraft**, Sunnyvale, Calif. $5,000,000. Work on the satellite control network. Sunnyvale. Air Force Satellite Control Facility, Los Angeles, Calif.

—**Grumman Aircraft Engineering Corp.**, Bethpage, N.Y. $3,200,000. Modification to S-2D aircraft. Bethpage. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**AVCO Corp.**, Cincinnati, Ohio. $2,344,844. High frequency radio sets and related equipment. Cincinnati. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Corning Glass Works**, Corning, N.Y. $1,463,000. Optical glass. Corning. Systems Engineering Group, (AFSC), Wright-Patterson AFB, Ohio.

19—**North American Aviation**, Anaheim, Calif. $1,900,000. Maintenance, repair, overhaul and modification of Minuteman guidance and control systems. Anaheim. Ballistic Systems Div., (AFSC), Norton AFB, Calif.

—**McDonnell Douglas Corp.**, Santa Monica, Calif. $2,124,484. Launch support services from April 1967 to September 1968 at the Western Test Range, Vandenberg AFB, Calif. Space Systems Div., (AFSC), Los Angeles, Calif.

—**Lockheed Aircraft**, Burbank, Calif. $1,228,276. Modification of F-104 aircraft. Palmdale, Calif. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif.

—**Northrop Corp.**, Hawthorne, Calif. $1,247,000. Development work on rocket guidance systems. Hawthorne. Systems Engineering Group, Research and Technology Div., (AFSC), Wright-Patterson AFB, Ohio.

22—**General Motors**, Hudson, Ohio. $2,631,042. Production of heavy loading equipment with adverse terrain capability. Euclid, Ohio. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**General Dynamics**, Fort Worth, Tex. $2,997,221. Machine tool modernization. Fort Worth. Aeronautical Systems Div., (AFSC), Wright-Paterson AFB, Ohio.

—**General Motors**, Indianapolis, Ind. $7,020,000. Production of T-56 turbo-prop engines and related equipment. Indianapolis. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Thokol Chemical Corp.**, Bristol, Pa. $1,500,000. Production of Stage I Minuteman motors. Brigham City, Utah. Ballistic Systems Div., (AFSC), Norton AFB, Calif.

—**I.B.M.**, Owego, N.Y. $1,332,844. Work on the radar system on B-52 aircraft. Owego. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla.

—**General Electric**, West Lynn, Mass. $10,742,400. J-85 engines for F-5 aircraft. West Lynn. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

24—**Sylvania Electronics Products, Inc.**, Williamsville, N.Y. $1,240,000. Work on a tactical communication satellite test program. Williamsville. Electronics Systems Div., (AFSC), L. G. Hanscom Field, Mass.

25—**Bendix Corp.**, Davenport, Iowa. $2,860,791. Production of airborne computer components. Denver, Colo. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**United Technology Center**, Sunnyvale, Calif. $59,850,000. 120-inch solid fuel rocket motors. Sunnyvale. Space Systems Div., (AFSC), Los Angeles, Calif.

26—**General Electric**, West Lynn, Mass. $7,378,000. Production of T-58 helicopter engines. West Lynn. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Philco-Ford Corp.**, Fort Washington, Pa. $3,750,000. Production of a semi-automatic tactical air control system. Fort Washington. Electronic Systems Div., (AFSC), L. G. Hanscom Field, Mass.

—**Douglas Aircraft**, Tulsa, Okla. $1,465,056. Production of modification kits and inspection and repair of B-66 aircraft. Tulsa. Warner Robins Air Materiel Area, (AFLC), Robins AFB, Ga.

—**Collins Radio Co.**, Cedar Rapids, Iowa. $1,392,082. Production of communications equipment. Cedar Rapids. Oklahoma City Air Materiel Area, (AFLC), Tinker AFB, Okla.

29—**Thiokol Chemical Corp.**, Huntsville, Ala. $1,600,000. Production of solid rocket motors. Huntsville. Space Systems Div., (AFSC), Los Angeles, Calif.

—**General Dynamics**, San Diego, Calif. $1,691,000. Repair and modification of Atlas launch vehicles. San Diego. Ballistic Systems Div., (AFSC), Norton AFB, Calif.

—**Watkins-Johnson Co.**, Palo Alto, Calif. $3,460,000. Production of communications equipment. Palo Alto. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Northrop Corp.**, Hawthorne, Calif. $4,606,944. Production of long lead time components for F-5 aircraft. Hawthorne. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**General Electric**, Valley Forge, Pa. $110,020,000. Experiment integration work on the Manned Orbiting Laboratory. Valley Forge. Space Systems Div., (AFSC), Los Angeles, Calif.

31—**Northrop Corp.**, Anaheim, Calif. $4,946,588. Production of aircraft rocket warheads. Anaheim. Aeronautical Systems Div., (AFSC), Wright-Patternson AFB, Ohio.

—**General Precision**, Binghampton, N.Y. $1,127,002. Production of instrument flight trainers. Binghampton. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**Goodyear Aerospace Corp.**, Akron, Ohio. $1,962,483. Production of air transportable photographic laboratories. Akron. Aeronautical Systems Div., (AFSC), Wright-Patterson AFB, Ohio.

—**American Electric, Inc.**, La Mirada, Calif. $1,347,608. Production of external fuel tanks for F-101 aircraft. La Mirada. Sacramento Air Materiel Area, (AFLC), McClellan AFB, Calif.

Fifth Army Headquarters Moved

Headquarters, Fifth U.S. Army has been moved from Chicago, Ill., to Fort Sheridan, Ill.

The new mailing address is:

Commanding General
Fifth U.S. Army
Attn: (appropriate staff office symbol)
Fort Sheridan, Ill. 60037

Military Prime Contracts Awards by Commodity Category

[Editor's Note: Below is a table of military prime contract awards for the first 10 months of FY 1967. The contract information in the summary is broken down by major commodities for the current fiscal year and includes, for comparative purposes, corresponding information for the same period in the last fiscal year.

This is the second summary to be published in this form in the Defense Industry Bulletin, *and is one of a series planned to be issued periodically by the Defense Department. The first summary was published in the April 1967 issue of the* Bulletin.]

(Amounts in Millions)

	July 1966 April 1967	July 1965 April 1966	Net Change
Aircraft	$ 7,492	$ 5,572	$1,920
Missile and Space Systems	3,705	3,687	18
Ships	1,865	1,069	796
Tank-Automotive	883	1,034	151
Weapons	387	305	−151
Ammunition	2,342	1,910	432
Electronics and Communications	3,032	2,587	445
Other Hard Goods	2,019	1,758	261
Hard Goods (Sub-Total)	$21,725	$17,922	$3,803
Subsistence	900	822	78
Textiles and Clothing	954	853	101
Fuels and Lubricants	1,022	879	143
Soft Goods (Sub-Total)	$ 2,876	$ 2,554	$ 322
Construction	705	725	−20
Services	2.827	2,033	794
All Actions Under $10,000 Each	3,291	2,876	415
Total [1]	$31,424	$26,110	$5,314

[1] Excludes work done outside the United States and also excludes civil functions (rivers and harbors work) of the Army Corps of Engineers.

The increases are for the most part associated with the current military action in Southeast Asia. By far the largest increase ($1.9 billion) is for aircraft, largely fighter planes, helicopters and cargo planes. Ships increased by $0.8 billion, mostly for escort ships and landing craft. Services increased $0.8 billion, large for air and sea transportation.

DEFENSE PRIME CONTRACT AWARDS TO SMALL BUSINESS

(Amounts in Thousands)

	March 1967 July 1966	July 1965 March 1966
Procurement from All Firms	$28,156,201	$22,771,684
Procurement from Small Business Firms	5,707,396	4,903,686
Percent Small Business	20.3	21.5

OFFICE OF THE SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

OFFICIAL BUSINESS

UNIVERSITY OF FLORIDA
3 1262 09683 3909

FLARE

AFSC Electronics Systems Division Gets Key Role in Development of TACSATCOM

The Air Force Systems Command's Electronic Systems Division (ESD), L. G. Hanscom Field, Mass., has been assigned a key role in the development of the first tactical satellite communications system for the Defense Department. ESD will carry out a feasibility test program, the prelude to a production go-ahead, and will develop many of the projected system's mobile terminals—airborne, ground-mobile and shipborne.

The tests will measure technical performance in situations resembling real, operating conditions. This phase of the project will use a limited number of mobile terminals or transceivers widely dispersed in or near the continental United States, and a solar powered payload in outer space.

Almost all terminals or stations in future tactical systems will be mobile, rather than fixed. Each of the Military Services will specify its own requirements for the mobile terminals which, despite different configuration, will have identical capabilities.

The Navy will have transceivers on board surface vessels, helicopters, fighter aircraft and submarines; the Army will have equipment on jeeps, trucks, and combat team backpacks; and the Air Force will have its gear not only on its aircraft but also on mobile ground stations. All will be tuned into the wavelength of the sky-high satellite.

The satellite communications system, bearing the acronym TACSATCOM, will be capable of handling a large number of calls or messages at one time by providing a single point relay directly to and from a commander and his tactical units in the field. When completed, the system will be the forerunner of satellite communications designed for the use of highly mobile military units.

Lieutenant Colonel Edgar A. Grabhorn, USAF, is the ESD program manager for the TACSATCOM system.

M16A1 Rifle Adopted as Standard Army Weapon

The M16A1 rifle (previously the XM16E1) has been adopted as a standard Army weapon in addition to the M–14 rifle now in general use. U. S. Army forces in Europe will continue to use the M–14 which fires the standard NATO 7.62mm cartridge.

The standardization of the M16A1 for general Army use was made after a two-year study in which several small arms systems were evaluated and tested. The study concluded that, while the heavier M–14 is slightly superior to the M16A1 in effects on targets at ranges beyond 300 meters, the M16A1 is equal or superior at shorter ranges where targets are usually engaged.

Designed to fire 5.56mm (.223 caliber) ammunition, the M16A1 weighs only a little over six pounds. This reduced weight will allow reduction of the individual soldier's combat load, supply tonnages and, ultimately, costs. Procurement schedules will take into account the number of weapons on hand, requirements of other Services and allies, and the Military Assistance Program.